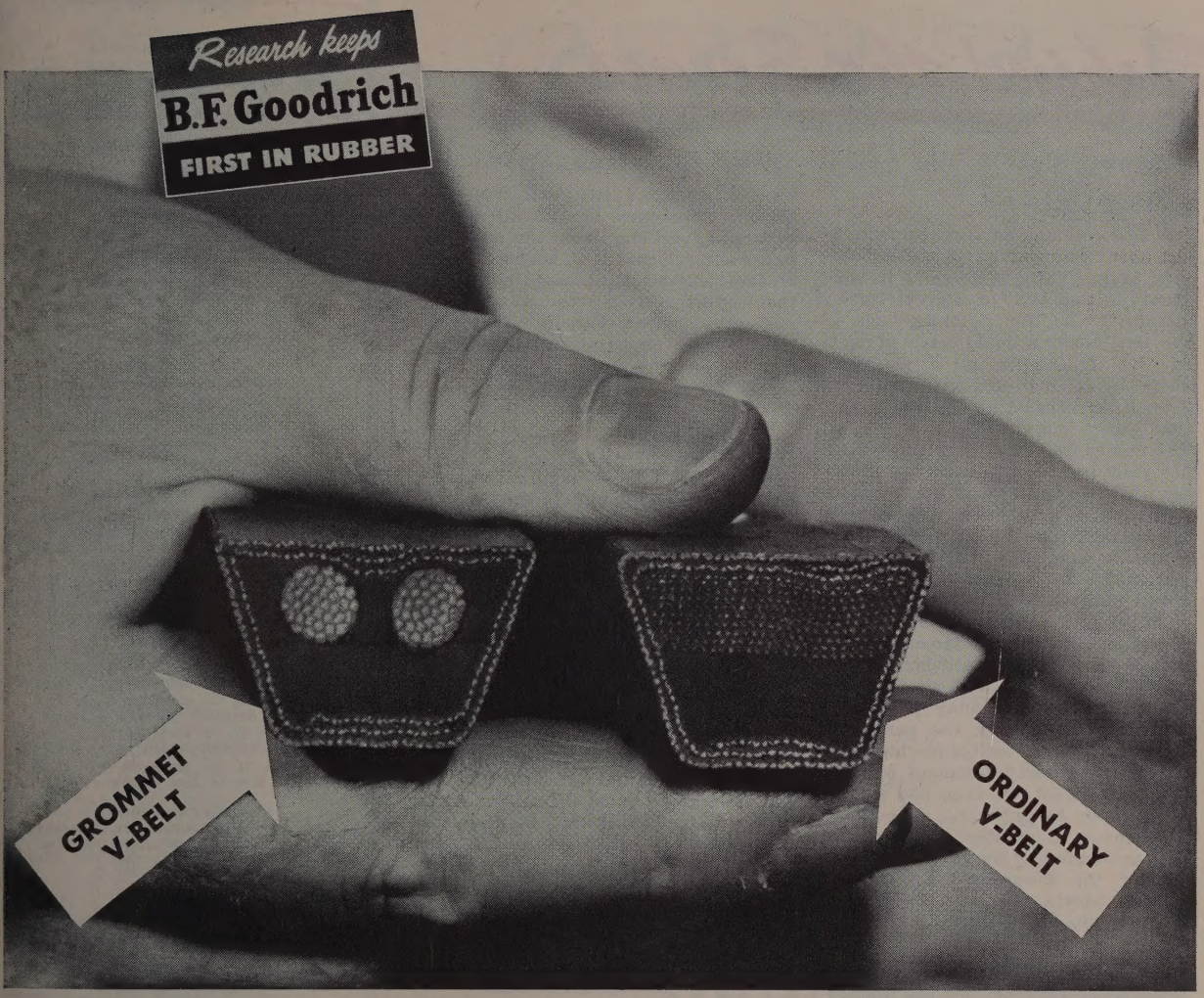

Cut V-belt costs 20 to 50% with new B. F. Goodrich grommet V-belt

Lasts longer, stands shock loads better, costs no more

A NEW patented construction by B. F. Goodrich puts all the cord material in a V-belt to work in the form of twin, endless, extra-flexible grommets — *not* cables — placed close to the driving faces of the belt (see left, above). No "lazy" cords in the interior to shirk their share of the load. Because grommets are endless they are more flexible, with no stiff section such as occurs in an ordinary cable, with spliced or overlapped ends.

Why twin grommet construction? When an ordinary large-sized V-belt (right, above) goes into the sheave its sides are squeezed by the pulley, forcing the center cords downward and out of the line of load-carrying stress. Belt men call this "dishing", because the cord section becomes concave, like a dish. With twin grommet construction there are no center cords, no "dishing" — as the belt goes into the pulley the grommets remain on the job, close to the driving surfaces of the belt.

Grommet belts take shock load better, last longer — Laboratory and field tests show that grommet belts have a higher safety factor, greater ability to withstand shock load, than ordinary V-belts. Reasons: no "lost" or "lazy" cords to shirk, greater flexibility, better gripping power. Grommet belts tested lasted from 20 to 50% longer than ordinary V-belts. Reasons: no cord overlaps (85% of ordinary V-belts fail in the overlapped section), no sawing cords, less heat.

How to get genuine grommet V-belts — Twin grommet construction is an exclusive, patented B. F. Goodrich development — no other manufacturer can make grommet V-belts. Now available in "D" and "E" sections. To be sure you get genuine grommet V-belts see your B. F. Goodrich distributor. *The B.F.Goodrich Company, Industrial Products Division, Akron, Ohio.*

B.F.Goodrich
RUBBER FOR INDUSTRY

Behind the Scenes...

Looking Backward

A few columns back we were talking about happenings of a half century back. There were some notable events in that year of a great Dewey victory. Who, for example, back in the gay nineties could have predicted the importance of a discovery made by a man-and-wife team of French scientists? Fifty years ago, that was, when the Curies discovered and named radium. That was also a big year in the metalworking industry. It was the era of great expansion in steel production, and to meet the demand for new steel mill equipment, a company was formed in Pittsburgh by George Mesta. The Mesta name was already well known on steel mill equipment, but it was to become far more famous. This month marks the fiftieth birthday of George's company, and so they decided to have a birthday party. We were invited, and in the person of Earl Shaner, our editor-in-chief, put on our best party manners and attended. In fact, we even had a camera on tap to prove it. The photo here shows a number of blocks of ice, surrounded by the Duquesne Club, and in the foreground are Lorenz Iversen, Mesta president on the left and Mr. Shaner on the right.

Horrors! Advertising

As long as we are on a historical note in this week's column, we might as well seize the opportunity to report on a yellowed manuscript we found while cleaning out an old file in the research department the other day. We were most forcibly reminded of the great strides advertising has made since the early days of publishing when we noted that a large part of the early space used was in classified ads, and that the editors were very careful to segregate all advertising from the editorial pages and relegate it to isolated parts of the book where it could not taint their efforts. Today the advertising pages in STEEL, with their attractive layouts and informative copy, provide an important source of information for all you readers.

Smart Selling

Many plants have adopted the not-so-new-but-refreshing technique of welcoming salesmen to their place of business, making it easy for him to see the necessary people and giving him some basic information on the company. One outfit now has gone a step further. The Egry Register Co., Dayton, not only welcomes the salesman, but provides one of their own registers for him to sign as a guest record so that their receptionist knows who he is, whom he is to see, etc. Then the Egry company sends a carbon of this record back to the salesman's home office, together with a letter telling that they appreciate the call, that our man was welcome, and that they like to exchange information with all salesmen who call there. They also put in a brief paragraph about their own product and what it does. It's a neat trick, and it's well done.

Love That Olds

Perhaps we shouldn't keep telling you readers, who are already well aware of the fact, that Art Allen's "Mirrors of Motordom" column is one of the outstanding features of this or any other business paper. Latest recognition of this fact is from the Oldsmobile Division of General Motors. They held a big press preview in September to show off the new plant which is building the Kettering high-compression engine. Reams of copy were written by top-flight newspapermen and magazine writers who attended this affair, and the Oldsmobile people kept a close check on all that appeared in print about it. We were really pleased and proud to note that in both the "Oldsmobile News" and the "Oldsmobile Dealer Round Table" Art Allen's column in STEEL was selected and reprinted in full as "one of the most informative articles" ever written on the subject.

Shrdlu

(Editorial Index—page 23)

STEEL

Vol. 123—No. 22 November 29, 1948

Business Staff on Page 4

EXT WEEK . . .

How To Select Inorganic Finishes

Intraplant Industrial Locomotives

Electronic Speed Regulation in New High Speed Rod Mill

Surface Chemistry in Metalworking Operations

STEEL

The Magazine of Metalworking and Metalproducing

VOL. 123, NO. 22 NOVEMBER 29, 1948

NEWS

SPECIAL REPORT

TECHNICAL

MARKETS

Editorial Index available semiannually; STEEL also is indexed regularly by Engineering Index Inc., 29 West 39th St., New York 18

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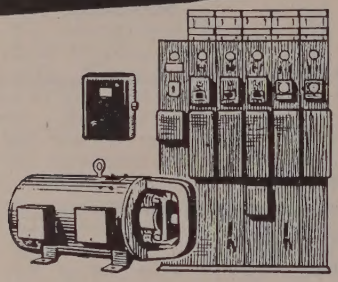
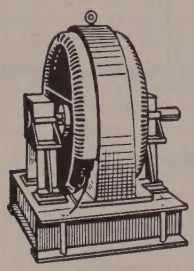


INDUSTRIAL-TRUCK BATTERY-CHARGERS

In 1910, The Electric Products Company introduced the first Automatic Battery Charger.

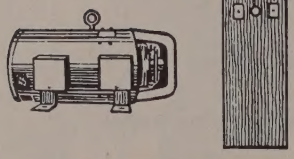
ASK FOR BULLETIN 203



SYNCHRONOUS MOTORS

From stator frame to rotor windings, E.P. Specialization is your guarantee of long life and trouble-free operation.

ASK FOR BULLETIN 211



STANDBY BATTERY-CHARGERS

Diverter-Pole Motor-Generators assure maximum battery life, full-automatic operation and protect themselves against harmful overloads.

ASK FOR BULLETIN 207

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SPECIAL MOTORS AND GENERATORS
FREQUENCY CHANGERS
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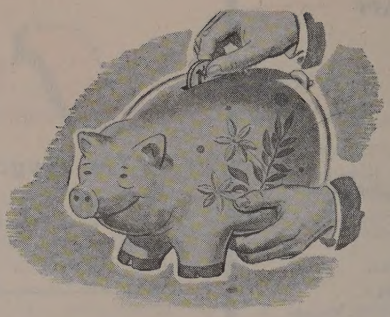
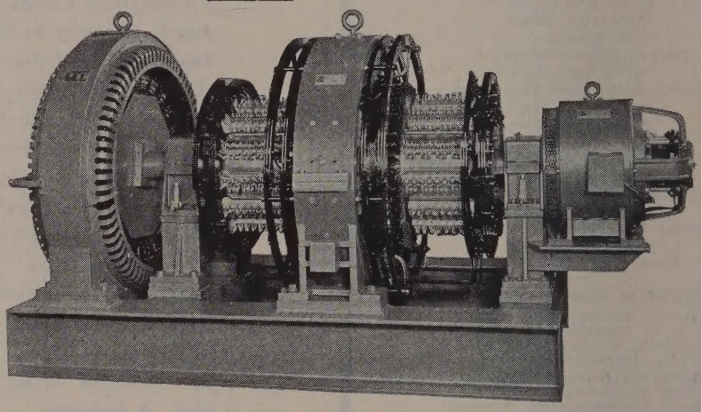


SHOULD WE SAVE PENNIES... *or DOLLARS*

. . . use an EP motor-generator



IT'S not the first cost that counts . . . it's the price of the equipment plus the cost of installation plus the expense of operation and maintenance. Lower life-time cost is the way to save DOLLARS. That's why the E.P. Motor-Generator has been selected to supply hundreds of thousands of direct-current amperes throughout the metal-working industry for electroplating, electrocleaning, electrotinning, electrogalvanizing, electropolishing and anodizing.

Designed specifically for electrolytic processes, the E.P. Motor-Generator reduces power bills because of its life-time efficiency of 75% or better; assures more amperes per dollar because it can safely handle heavy overloads; and requires no special protective equipment like expensive forced-draft ventilating or high-cost vaults.

Thirty-four years of operating experience prove that E.P. Motor-Generators give economies of operation unmatched by any other source of direct current.

EP X-5

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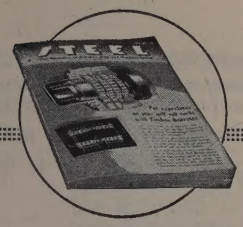

November 29, 1948

Legal Smog

Several months ago a voluntary scrap allocation plan was proposed which involved the formation by the scrap industry of a corporation to act as a central buying agency in Germany for indigenous iron and steel scrap for shipment to the United States. Under the plan, scrap obtained from abroad was to be allocated by the Department of Commerce to consumers on the basis of need.

This plan was favored by numerous government officials and at a meeting of several hundred representatives of the scrap industry, a majority approved the idea. It appeared to be a workable method of expediting the flow of urgently needed scrap to American furnaces.

Last week Secretary of Commerce Charles Sawyer announced that the plan has been abandoned, at least for the time being, because of "legal and other uncertainties." Evidently the chief uncertainty is whether or not the plan could be construed as conflicting with the price-fixing ban contained in Public Law 395, under which voluntary allocations are administered.

Apparently this is another of the numerous cases where doubt as to the interpretation of government anti-trust, anti-monopoly, restraint-of-trade and similar regulatory legislation has caused industry, or industry in co-operation with government, to abandon plans which if carried out would have gone a long way toward solving important problems of postwar adjustment.

It would be interesting to know how many ideas worked out carefully by industrial executives for the sole purpose of alleviating hardship because of scarcities of materials, of curbing black market operations or of accomplishing other equally praiseworthy objectives have been dropped because legal counsel has warned that certain practices involved in the plans encroach upon that twilight zone of legal uncertainty.

Federal Trade Commissioner Lowell B. Mason stated last Tuesday that 119,000 American business enterprises have been made liable to prosecution on charges of illegal price practices under instructions recently sent to FTC field agents.

Thanks to Supreme Court decisions and to FTC and Justice Department interpretations, a legal smog has been created which threatens to paralyze constructive industry action on numerous things which should be done for the good of the nation. The lawmakers did not intend this. Congress may have to step in to clear the atmosphere.

* * *

LESSER OF TWO EVILS: Of immediate concern to long suffering consumers of steel will be the attitude of President Truman and the 81st Congress toward the distribution of this still scarce product.

The President repeatedly has asked Congress for standby authority to impose mandatory controls, if necessary. If such powers were granted by the new Congress, the President would have wide discretion as to methods of allocation. He could place steel on ration or on mandatory controls or he could continue the present system of voluntary allocation.

Apparently, apprehension that the new Congress may grant the President powers which the 80th Congress denied him has caused steel producers to reconsider their attitude toward voluntary allocations. A month ago they were cold to an extension of the voluntary plan. Today they are more favorable to it, as attested by their action in extending five voluntary programs for six months beyond the Feb. 28 ex-

(OVER)

piration date and in approving one new voluntary plan.

This about-face undoubtedly comes from a conclusion that in peacetime voluntary allocation is a lesser evil than outright rationing or mandatory allocation. The strategy is sound because experience has shown that the more rigid the controls the more steel is withheld by red tape from effective use. The more flexible the controls, the greater is the ability of current supply to satisfy the current needs of those who must depend upon the steel that is available in the open market. —pp. 33, 117

* * *

NEW CAPACITY FIGURES: In this issue the editors present detailed statistics released by the American Iron & Steel Institute showing the capacities in the United States and Canada for producing pig iron, coke, steel ingots and finished steel products. This tabulation is significant in that it is the first directory of the iron and steel industry compiled by the institute since late in 1945 and therefore it reflects the changes that have occurred since the end of the war.

Blast furnace and coke oven capacity today exceeds that at the peak of the war effort. Steel ingot capacity of the United States, which topped 95 million net tons as of Jan. 1, 1945, on Jan. 1, 1948, stood at 94,233,460 net tons. Hot-rolled steel capacity has increased from 63 million tons in 1938 to almost 74 million tons as of the beginning of 1948. Over half of this increase is in facilities for rolling sheets, strip and strip for tin and black plate. —pp. 39-54

* * *

ISOTOPES IN INDUSTRY: Interesting experimental work by the applied physics laboratory of Ford Motor Co. indicates that radioactive isotopes of cobalt and selenium may have important possibilities in industry.

Shipments of cobalt 60 and selenium 75 isotopes have been received by Ford from the uranium chain-reacting pile of the Atomic Energy Commission at Oak Ridge, Tenn., since last May. Thus far experiments with the isotopes have included the radiographic inspection of metals, periodic checking of welds in high pressure steam lines, determining the height of molten metal in foundry cupolas and measuring and controlling the thickness of sheet steel as it is being rolled on continuous mills.

As a result of preliminary tests, the Ford company is developing a permanently mounted installation for measuring height of cupola metal and is considering the practical use of beta radiation for thickness control on a sheet mill. —p. 61

* * *

STANDARDIZE THREADS: After 30 years of painstaking effort on the part of many persons, United States, Great Britain and Canada have agreed upon a standard system of screw threads.

The unification agreement provides for a 60-degree angle and a rounded root for screw threads. Crest of the thread may be flat, as preferred in American practice, or rounded, as preferred by the British. The number of threads per inch for the various series of thread diameters has been unified and the limiting dimensions for three classes of fit—loose, medium and close —have been agreed upon.

It is almost impossible to overestimate the importance of this achievement in technological unity. It makes international interchangeability of screw thread parts an early reality and arouses hope for standardization on an even broader scale later on.

The changeover from existing gages, tools, dies and taps should not be unduly difficult. As present units wear out they will be replaced by new ones conforming to the new standards. The transition could be completed in a few years. —p. 32

* * *

POWER AND TRANSPORT: Water figures in the news from both ends of the nation, but in strangely different ways.

In the Pacific Northwest, shortage of water in mountain streams has caused a sharp reduction in the production of hydroelectric power and a consequent slowdown of industrial operations in some areas. Hardest hit is the aluminum industry, which may lose nearly 40 million pounds of production at a time when demand for the light metal is at its peak.

Farther east, in the Midwest, M. A. Hanna Co., Cleveland iron ore, coal mine and lake vessel operator and an opponent of the St. Lawrence Seaway project for many years, has reversed its stand and now favors the waterway aspect of the proposal. Development of iron ore deposits in Quebec and Labrador is the reason for the change of attitude. —pp. 35, 36

E. L. Shaner

EDITOR-IN-CHIEF

News Summary

PRICING— What to do about the pricing policy confusion created as result of the Supreme Court's cement decision may be one of the livelier issues to come before the 81st Congress (p. 31). Investigation of the matter by the Capehart committee is entering its final phase and a report to Congress, accompanied by legislative recommendations, is expected before year's end. Action may be affected by political considerations, but pressure is being exerted on Democratic and Republican representatives alike for legislative clarification.

ALLOCATIONS— A new lease on life was given the voluntary allocations program when steel producers agreed to extend five civilian allocation programs through next August (p. 33), and to give favorable consideration to several new programs. Military programs were assured of extension several weeks ago. Meanwhile, prospects are for passage by Congress of standby mandatory allocation powers for scarce materials.

SCREW THREADS STANDARDIZED— United States, Great Britain and Canada have culminated 30 years of effort by approving standards for screw threads (p. 32) which would make many components made in the three countries interchangeable.

ALUMINUM HOUSING— A model ranch type house using 7000 pounds of aluminum has been erected at New Kensington, Pa., to demonstrate the qualities of the light metal in home construction (p. 37). Aluminum is used in practically all phases of construction, including tubing for radiant heating, plumbing, foil for insulation, as well as walls, roof, partitions and fixtures.

ISOTOPES IN INDUSTRY— Although still on an experimental basis, the use of radioactive isotopes of cobalt and selenium appear to have important practical possibilities in industry (p. 61). They are being used to test welds, determine the height of molten metal in cupolas and measure and control thickness of sheet metal on rolling mills.

STEEL CAPACITY STATISTICS— Detailed and official figures on coke, pig iron, steel ingot and finishing capacities of the steel industry, as compiled by the American Iron & Steel Institute, are now available (pp. 39-54). The industry now has the largest capacity for producing iron and coke in its history, while steel ingot capacity is near the wartime peak. Finishing capacity again is figured on a practical capacity basis, and the maximum annual potential capacity figures adopted during the war have been abandoned.

CONTINUOUS CASTING— No revolution in steelmaking methods, nor any great shift in location of steel producing facilities are likely to result from the development of new process for continuous casting of steel. Spokesman for one of the co-developers of the new process told the Capehart committee (p. 31) that, when perfected, the continuous casting method may eliminate for part of the industry the soaking pit and blooming mill installations, estimated to represent about 5½ per cent of the total cost of an integrated steel mill.

HERE AND THERE IN INDUSTRY— West Coast industry's power supply is short as result of last winter's drought which lowered the water level in streams and reservoirs (p. 35) . . . . New orders for machine tools (p. 38) declined in October for the fifth consecutive month . . . . Purchase of the Phoenix-Apollo Steel Co. plant by Kaiser-Frazer will not disturb the movement of sheet bars from this plant to the P-A sheet rolling mill at Apollo, Pa. In fact, such shipments (p. 38) may be increased . . . Mere standby plant and equipment do not constitute preparedness unless trained personnel is available to operate them. This was the message given the National Founders Association (p. 34) by Donald F. Carpenter, chairman, Munitions Board . . . Reports for Congress and the President on the reorganization of the executive branch of the government are being shaped up by the Hoover Commission (p. 56); President Truman has indicated they will be given sympathetic attention.

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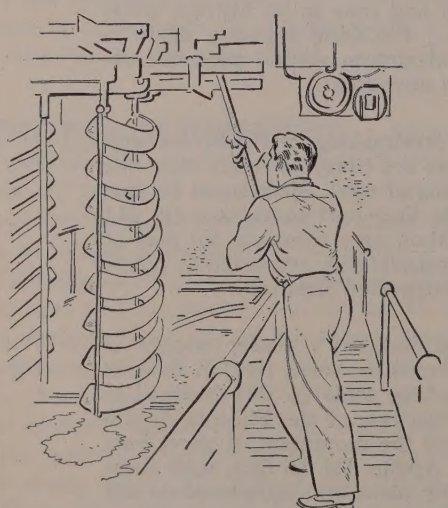
Electroplaters know how much time can be wasted in unnecessary grinding and polishing when the steel they shape and plate *varies* in surface structure. These men prefer steel that's *uniform.* That's why they like steel *made by Inland.* Uniform source of raw materials . . . uniform steelmaking procedures using the same modern equipment . . . uniform workmanship—made possible by Inland's completely integrated, closely knit plant—explain why the Inland steel received today will be of the same uniform quality as that received last month . . . or last year. INLAND STEEL CO., 38 S. Dearborn St., Chicago, Ill. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.



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Pricing Issue Heads for Congress

Capehart committee to report on findings before year ends. May include legislative recommendations. Democratic leaders cool toward probe, but are worried over dislocations

CLARIFICATION of pricing policies may well become one of the most hotly contested issues in the 81st Congress.

Sen. Homer E. Capehart (Rep., Ind.), whose trade policies committee is conducting an extensive investigation of the economic significance of the Supreme Court's cement case decision, will present a report to Congress on the matter before the year ends. The report probably will carry legislative recommendations.

How the Democratic-controlled Congress will receive the report remains to be seen. Some of the Democratic leaders have appeared indifferent or hostile to the Capehart investigation. Rep. Wright Patman (Dem., Tex.), who probably will head the House Small Business Committee next year, has charged that the Capehart committee is attempting to weaken the antitrust laws, a charge that Senator Capehart denies. Democratic members of the Capehart committee seldom attend the committee hearings.

Some Democratic leaders have indicated they will oppose legislation to clarify the freight absorption issue.

Worried Over Dislocations—However, many congressmen in both parties are becoming increasingly worried over the dislocation of industry as result of the increasing adoption of f.o.b. mill selling. Both Democrats and Republicans are frightened by threats of thriving communities in their districts becoming ghost towns as result of industries moving to more favorable locations freightwise.

Much of the testimony before the Capehart committee has indicated fears that dislocations would be so severe as to economically ruin some communities.

Typical is the testimony of William L. McGrath, president, Williamson Heater Co., Cincinnati. Mr. McGrath's company recently established plants at Madison and Greensburg, Ind. Mill pricing of steel, he said, threatens the existence of these plants.

"If the steel industry is to be permanently on an f.o.b. mill basis, companies requiring steel or pig iron will tend to gravitate toward the centers of steel and iron production. No longer will little towns like Madison and Greensburg get industries that will enable them to supplement farming and thereby balance out their economic situation. Instead, towns like Madison and Greensburg will be left high and dry, while new plants grow up around towns like Pittsburgh, Gary and others that already are top-heavy centers of industrial production."

Hearings Resume—The Capehart committee is scheduled to resume hearings Nov. 29, after recess since Nov. 19. During late sessions of the hearings, Capehart committee counsel drew from Federal Trade Commission attorneys the admission that "the only pricing practice which may be used with the assurance of legality in an industry where freight is a substantial part of the delivered cost is a uniform f.o.b. mill price."

The committee also drew from Walter B. Wooden, associate FTC counsel, these opinions:

1. A seller shipping his product in his own trucks may include his transportation costs with his costs of production, whereas a seller shipping by common carrier may not do so.

2. A company owning its own warehouses legally may charge local prices at each warehouse without respect to the cost of transportation from the mill to the warehouses, whereas a company not owning its own warehouses cannot meet this competition systematically without becoming liable to charges of discrimination.

Senator Capehart has prodded the FTC witnesses to explain how a business can operate without a systematic price policy.

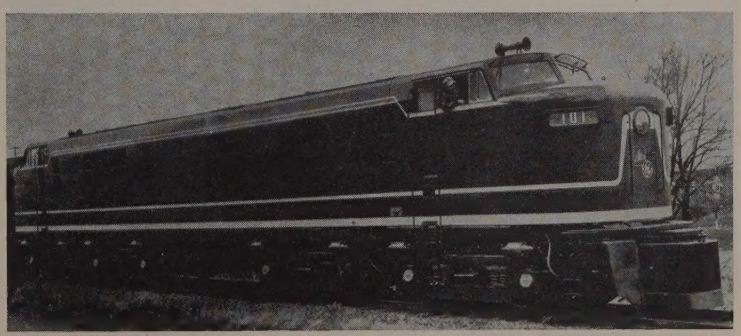
At one stage in the hearings, the senator pointed to a bald man in the audience and said: "I wonder whether the FTC will not say he ought to pay the barber less than a man with a lot of hair. Also whether it is legal to charge as much for a size 12 shirt as for a size 16."

No Steelmaking "Revolution"

CONTINUOUS casting of steel will not revolutionize the methods of producing steel. Nor will it result in any great shift in location of steel producing facilities. Nor will it cause any great reduction in steel production costs.

These views of the implications of the continuous casting process were expressed before the Capehart committee by R. H. Bahney, chief engineer of steel plants, Republic Steel Corp., Cleveland. Republic, in co-operation with Babcock & Wilcox Tube Co., Beaver Falls, Pa., developed a continuous casting process which has attracted much interest in recent months.

It has been suggested that the new process would permit decentrali-



NEW LOCOMOTIVE: First gas turbine-electric locomotive built and operated in the United States is undergoing preliminary track tests. A joint undertaking of American Locomotive Co., New York, and General Electric Co., Schenectady, N. Y., the locomotive represents a new type of motive power whose potentialities are being investigated

zation of the steel producing industry and perhaps permit steel to be produced economically in small plants near consuming plants.

Still in Experimental Stage — "I wish to make it perfectly clear that the continuous casting process is still in the experimental stage and will not revolutionize the methods of producing steel, or render obsolete the present facilities for making steel," Mr. Bahney told the committee. "It may eliminate, for perhaps 50 per cent of the industry, the conventional soaking pits and blooming mill and substitute therefor the continuous casting process, which, under present conditions, represents about 5½ per cent of the investment cost of an integrated steel plant.

"At best, it will always be simply an accessory to a large steel plant."

Republic has been active in the experimentation and development of the continuous casting machine for the past seven years. "In looking back over the progress during this period we are well aware that it probably will take a considerable period of years before the process may be developed to the point that all grades and sizes of steel can be satisfactorily and economically cast."

Installation Canceled—Mr. Bahney said Republic had considered the possibilties of installing continuous casting machines at two plants producing simple steel shapes. At the first plant, it was found that a billet of the required shape could not be economically produced in the present state of the art. However, in the second plant, it was found that the billets now being produced by conventional methods could be produced by continuous casting at a somewhat reduced cost, and so the company is giving serious consideration to the installation of a continuous casting machine at this plant.

"I refer to this merely to bring out the point that the continuous casting process does not have sufficient advantages or result in sufficiently lower production costs to make any revolutionary change in present steel mill practice.

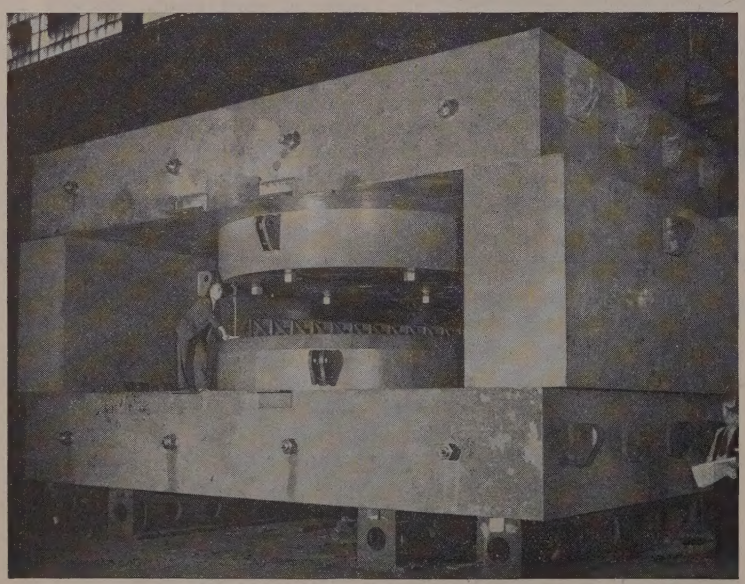
"In short, under no consideration in the flow of steelmaking from iron ore to finished product in an integrated steel plant can the continuous casting process replace any of the numerous steps except in the casting of ingots, and the heating and rolling of ingots on the blooming mill."

Construction Savings Slight—The witness presented some estimates of the costs of building a new integrated steel plant today. He estimated that a conventional steel plant with a capacity of 60,000 tons of ingots a month would cost $216 million. If instead of the conventional type of plant, continuous casting machines were installed, the cost could be reduced to $204 million, or a net reduction in cost over the conventional plant of 5½ per cent.

"However, it will be some time before we know whether such a plant can economically produce the full range of products now produced on the blooming mill in the conventional plant. . . .

"We in Republic do not regard the development of the continuous casting process as one which is going to result in any major shift in the location of steel producing facilities nor in any great reduction in steel production costs. We are happy to have participated in this development and it is our expectation that its application can be expanded by further experimentation so as to result in some increased production and a corresponding decrease in costs.

"However, we regard it merely as a step in the continuing evolution of steelmaking."



ATOM SMASHER'S HEART: These massive solid steel components constitute the heart of the cyclotron being built for Carnegie Institute of Technology Nuclear Research Center, Saxonburg, Pa. Despite immensity of the steel chunks, workmen at Homestead Works of Carnegie-Illinois Steel Corp. turned out the close-fitting magnet steel pieces with tolerances to five one-thousandths of an inch

Standard Screw Threads

U. S., Britain, Canada agree on standardization. Peace and war benefits seen

THE UNITED STATES, Great Britain and Canada have agreed to a standard system of screw threads.

Culminating 30 years of effort toward unification, an accord reached by the three nations makes interchangeability of screw thread parts possible, thereby broadening the possibilities of commerce for the three countries and at the same time providing a technological unity that would be valuable in wartime.

The unification agreement provides a 60-degree angle and a rounded root for screw threads. Crest of the thread may be flat, as preferred in American practice, or rounded, as preferred by the British. Number of threads per inch for the various series of thread diameters has been unified, and the limiting dimensions for three classes of fit (loose, medium, and close) have been agreed upon.

Different Angles Used—Up to now the British have been using a system originated in 1845 by Whitworth. It is based on a thread angle of 55 degrees with a thread form having rounded crests and roots. The American system, developed by Sellers in 1864, has a thread angle of 60 degrees with a thread form having flat crests and roots. Number of threads per inch for the various series of thread diameters was the same in both systems, with exception of the half-inch coarse thread. Accurate fits

etween components having different hread angles were impossible. Moreover, the tolerances and allowances aried in the two systems.

British Make Concessions — Purhases by the governments of the hree countries will be based on the ew standards, but industrial use vithin the normal commerce of each f the nations will require transfornation of industrial practices, involvng considerations of engineering, deign, tooling, and production. British ndustries have made the most conessions under the new agreement and vill have to make the most changeovers in methods. However, the hangeover has been engineered so hat it will be gradual and cause no erious economic strain. As rapidly s existing gages, tools, dies and aps wear out they will be replaced vith new ones which conform to the ew requirements. The transition is xpected to be completed in the next ew years.

The new accord pertains to the nost commonly used type of screw hread. Other important types of crew threads, such as the buttress nd the acme, remain to be standrdized.

Steel Case Extension Granted

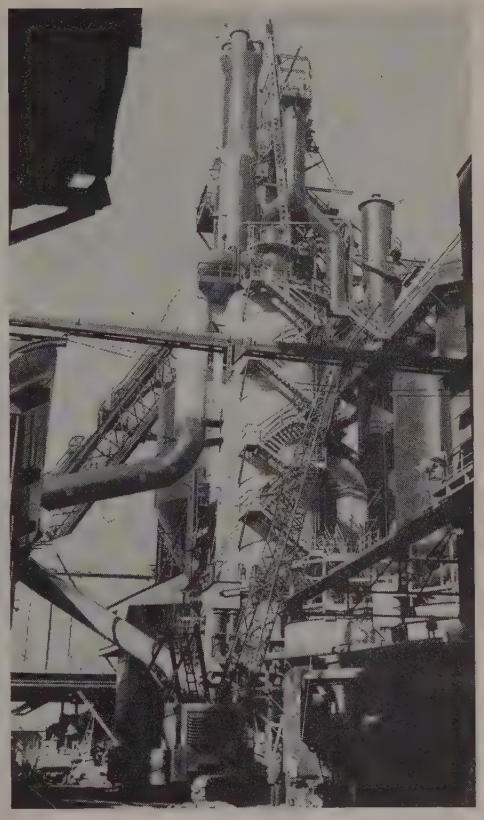
EXTENSION to Dec. 13 has been granted respondents in the Federal Trade Commission's case against the steel industry's former multiple basng point-delivered price system. During this period they can offer heir final suggestions as to what estimony and exhibits will be ruled by Trial Examiner Frank Hier as parts of the permanent record in the case.

Sometime after Dec. 13 the trial examiner will make his ruling, after which a date will be set for the openng of hearings at which the respondents will develop their defense.

On the basis of comments which nave been made by steel company attorneys to STEEL, the steel industry will not ease up in its defense as a consequence of having gone to f.o.b. mill prices this year, thus discarding the old basing system.

Allocations Bite Being Felt

GOVERNMENT allocation programs are a growing headache among Southern California manufacturers of strictly peacetime products. With chronic shortages of plates, sheets and bar stock there is the added undercurrent of expectancy that the lack will become more and more aggravated.



NEW FORD STACK: Ford Motor Co.'s 226-foot high blast furnace, third and largest at the Rouge plant, is producing basic iron at a rate of between 1300 and 1400 tons daily. The new stack will almost double iron output at the Rouge, the other furnaces being rated at 750 tons each daily. Eventually the new stack will minimize Ford's dependence on the outside scrap market and will be a major factor in stepping up Rouge steel production. New stack has been christened the William Clay Ford in keeping with the family tradition of naming blast furnaces for the grandsons of Founder Henry Ford

Allocations Extended

Five voluntary programs to continue through August. New ones in making

VOLUNTARY allocations have been given a new lease on life through agreement by the steel industry to extend five programs now in effect for six months beyond the Feb. 23 expiration date of Public Law 395. These extensions are in addition to those for three defense program allocations approved the week before.

The steel producers also voted to approve one new voluntary plan and recommended the development of voluntary allocations for several other projects in the national interest.

Meanwhile, expectations are that the 81st Congress will grant the administration standby mandatory allocation powers early next year.

The five voluntary programs extended to Aug. 31 are:

1. Construction and repair of oil tankers, 40,380 tons of steel products monthly.

2. Construction and repair of merchant vessels, 15,190 tons, an increase of 5000 tons above the present rate.

3. Construction and repair of inland waterway barges, 25,000 tons monthly, an increase of 5000 tons over present allotment.

4. Repair and construction of freight cars, up to 250,000 tons monthly to meet the present program of 10,000 new cars a month.

5. Oil field tank and production equipment, 16,530 tons monthly.

Mining Machinery Program Approved — The steel committee also approved a plan to make 26,000 tons of steel available for the manufacture of mining machinery, effective during February. This allotment may be increased later.

Development of a program to make steel sheets available for the construction of grain storage bins was voted. The committee also recommended development of a plan to provide steel for terminal and bulk oil storage to be considered at the next meeting. A proposal to provide pipe for the East Tennessee Natural Gas Pipeline Co. was referred back to the Office of Industry Cooperation for further study and review.

Asks More Oil Country Goods— Secretary of Interior Krug asked the steel producers to give special consideration to providing more line pipe and oil country goods to the petroleum industry.

Foundrymen Facing New Problems

Addresses and discussions at NFA meeting reflect rising concern for future of business and government policy. Franklin Farrel III elected president for 1948-49

DURING the war, and in the years since, the biggest problem before the foundry industry has concerned the satisfying of high volume demand for castings.

When the National Founders Association convened in Chicago, Nov. 18-19 for its Golden Anniversary meeting, however, it was apparent that today foundrymen are concerned with a markedly different situation than has prevailed in recent years.

Questions now uppermost in their minds revolve around the uncertainty with respect to the future of business. Will current high-level business activity be sustained much longer? Will the government's attitude toward business be friendly? Is the free enterprise system secure?

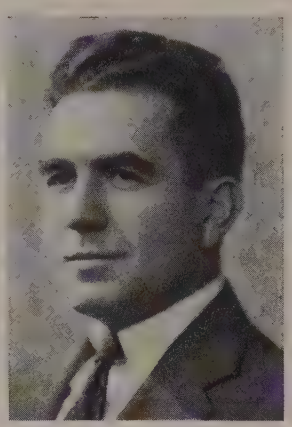
These were some of the questions posed for the 225 foundry executives attending the meeting, in the addresses and discussions which featured the 2-day program, covering such subjects as management's responsibilities to workers, stockholders and the public. Safety and economical operation of productive facilities also came in for attention.

Management's Responsibilities — Speaking on the broad subject of "Management's Responsibility in Adjustment of Our Economy," I. Richards Wagner, president of the association and president, Electric Steel Castings Co., Indianapolis, said two outstanding responsibilities of management are first, to know what must be done, and second, to educate on what must be done. Business requires a technical knowledge and also an industrial relations knowledge.

In the same vein, C. S. Carney, Stevenson, Jordan & Harrison Inc., management engineers, told the meeting business has four services to perform: 1, To make a product, 2, to make a profit, 3, to supply employment, and 4, to provide a market for goods.

Tribute To Founders—Paying tribute to the founders of the organization in January, 1898, E. C. Hoenicke, general manager, Eaton Mfg. Co., Detroit, recounted the importance of the foundry industry to the nation's industrial structure, and pointed out that the aims of the founders remain the aims of the association today.

Congressman Gerald W. Landis (Rep., Ind.) and vice chairman, Committee on Labor & Education, discussing the Taft-Hartley Act said recent events have dimmed the high hopes many have held for effective national labor policy. However, he asserted, the recent election did not give Congress a mandate to repeal the Taft-Hartley law, and he doubted



FRANKLIN FARREL III

it would be repealed though he did expect considerable modification.

A note of apprehension for the future of business was struck by Phil S. Hanna, business analyst, *Chicago Daily News,* presenting his views on the meaning of the election to industry. He pointed out that never have so few men in government held the answer as to whether business will go ahead. Business is not likely to stand still, and, in his opinion, will go ahead unless Washington starves capital.

Safety and Labor Relations—Personal interest by management in workers' safety and health would go a long way toward closing the widening breach between the two, Roger Bronson, Bronson, Dennehy, Ulseth Inc., Chicago, asserted. There is a definite relationship between safety and labor relations, he declared, and those plants in which the employee and employer are on amiable terms are the ones where the latter is vitally concerned with accident and sickness reduction.

In a straight-from-the-shoulder talk, L. E. Wass, director of industrial and adult education, Davenport, Iowa, told the foundrymen why their industry is at an all-time low in skilled worker recruitment. He blamed educators, parents, young people, and members of the industry, for allowing the schools to prepare 85 per cent of all students for 10 per cent of the available jobs. This "white collar complex," he said, can be overcome if the same amount of diligence is spent on human procurement as on materials procurement, and if defects in the present system are examined and corrected.

Thoroughness with which industry and the military establishment should prepare for a future emergency was discussed by Donald F. Carpenter, chairman, Munitions Board. Complete preparedness is intolerable as to cost, he said, but equally intolerable because of its risk is complete unpreparedness. The middle course seems to be the answer and is the goal of the military establishment now.

Vitally important, Mr. Carpenter emphasized, is that industry and the military be able to expand quickly if the need should arise.

Too many people fail to realize that the mere existence of standby plant and equipment does not constitute preparedness, he said. Without properly trained personnel to operate these plants there would be no time saved and in event of another war time would be of the essence. During the earlier world wars, he stated, our industrial preparedness was paid for by our allies, and he felt we could not count on this the next time since the initial attack would be aimed at us directly.

The real strain on completed preparedness plans, embodying plant capacity allocated among the services and raw materials divided among these plants, would come if the crucial moment to test their efficiency should arrive. Will the separate procurement agencies be willing to wait for the plan to function or will they ignore it and compete among themselves for the capacity of industry? Industry too may try to break away from the established procedures and seek material and orders on a catch-as-catch-can basis. His plea to both was "Bear with us, make suggestions, but please be patient."

NFA officers for 1948-49 were elected as follows: President, Franklin Farrel III, secretary, Farrel-Birmingham Co. Inc., Ansonia, Conn.; vice president, Harry E. Ladwig, manager of foundries and pattern shop, Allis-Chalmers Mfg. Co., Milwaukee; and secretary-treasurer, Leroy E. Roark, who continues as NFA executive vice president.

Power Shortage in West

Industrial production seriously affected in area. Aluminum output severely curtailed

SERIOUS drought which disrupted West Coast industry last winter threatens to have more severe effects during the next few months.

A shortage of water in mountain streams and reservoirs means a sharp reduction in production of hydroelectric power, and consequently a slowing of industrial operations in some areas.

At present the worst power shortage exists in the Pacific Northwest, where the deficit of power is estimated to be about three times greater than last winter. In that area, a conservation program already has curtailed operations of many factories, or has brought about changes in operations to meet shortages at peak demand periods.

Aluminum Industry Hit — The heaviest industrial blow has fallen on the Northwest's aluminum industry. Because it has had to reduce operations, it is estimated aluminum production in the area will be cut back nearly 40 million pounds. This reduction comes at a time when the need for the light metal is greater than any previous demand. Largely as a result of the curtailment, total U.S. production of aluminum this year now is being forecast at no more than 1.3 billion pounds compared with an estimated demand of 3 billion pounds.

Thus far power cutbacks have deprived four aluminum plants of 66,000 kw of power, and another 16,000 kw have been placed on a part time delivery basis, subject to interruption at peak periods. The four plants affected are those of Aluminum Co. of America at Vancouver, Wash., Permanente Metals Co. at Spokane, Wash., and two plants of Reynolds Metals Co. at Longview, Wash., and Troutdale, Ore.

All Users Affected—All users of aluminum on the West Coast will be affected by the prospective shortage of the metal because of the drought. Southern California aircraft plants may be the most seriously concerned.

How hard the drought will fall on California's other industries this year will depend on the amount of rainfall in the next two months. Thus far this fall, precipitation is far below normal.

Agricultural enterprises are already noticing effects of the drought, and, as California's economy is largely based on agriculture, the effects on farming are being felt, or soon will be felt, on a wide variety of industries and general business.

THIRST QUENCHER: One of the many places into which the nation's record-breaking production of steel is going is the reinforcing structure of this huge duct being constructed as part of an irrigation project in northern California. NEA photo

Capital Needs on Coast Mount

WEST COAST business men fear an excess profits tax perhaps more than any other governmental factor. Effects of such a tax, they believe, will be much more serious than repeal or relaxation of the Taft-Hartley Law.

One of today's major problems of industry in general, say West Coast leaders, is capital. Need of large amounts of working funds to carry inventories, pay wages and expand plants, is greater than ever before. At the same time, sources of new capital are tightening.

They believe an excess profits tax not only would drain off much present working capital, but also would deplete the supply of risk capital or other funds.

Business Slipping—At the same time, signs of declines in some lines of western business are appearing. For example, dollar sales of leading department stores in major western cities have been declining steadily (compared with a year ago) during the last six weeks.

Demand for farm implements in the rural sections of California is slackening. Although employment remains high, there are ample signs that people, pinched by the high cost of nearly everything they buy, are spending more frugally. Demand has slackened in used car lots, and prices on used autos are coming down. Several makes of new autos are being offered for immediate delivery.

In steel, a leading distributor in San Francisco reports a definite slackening in demand. The gap between supply and demand still is wide, he says, with the availability of many steel products still tight, but he believes the letdown in new business, if accelerated, will turn into a major trend.

One factor, he reports, is that volume of orders is based on too narrow a foundation. Too few large customers are ordering too large a volume of steel.

Most businessmen are exerting great caution in planning for the immediate future.

Drop German Scrap Plan

Legal uncertainties result in abandonment of proposal for buying agency and allocation

PLANS to establish a private corporation under government sponsorship to serve as single buying agency for German scrap to be shipped to this country and distributed here under a voluntary allocation plan have been abandoned, at least temporarily. Because of legal and other uncertainties, no further action will be taken at present on the proposal, Commerce Secretary Sawyer announced last week.

The uncertainties center principally around the price-fixing ban contained in Public Law 395 and the extent to which military government authorities in western Germany can participate in certain phases of the proposed undertaking.

Approved By Industry—The proposed plan had been approved by the industry and a committee set up to consult with the Commerce Department. After several meetings a tentative plan was developed which in turn was taken up with the Army, the State Department and the Justice Department. In these latter discussions, however, uncertainties as to whether the military government in Germany could participate in certain phases were disclosed. At the same time the Justice Department indicated uncertainties in some of the provisions of Public Law 395 could not be completely resolved which raised the possibility of risk to participating scrap dealers.

Despite abandonment of the plan Secretary Sawyer indicates the Commerce Department will continue to make every effort to improve the domestic scrap situation and is hopeful substantial quantities of scrap will continue to flow here from Germany.

In this connection, last week he denied the flow of scrap from Germany to this country was in such volume some of Europe's steelmaking capacity would probably remain idle next year for lack of scrap, a statement attributed to the United Nations Economic Commission.

He pointed out that only a total of 156,000 tons had been shipped here to date. Of this tonnage 49,000 were our own army scrap. During this period large exports of scrap from western Germany to other European countries were made amounting to at least 1,705,000 tons.

Further, according to Secretary Sawyer, a joint industry-government mission conservatively estimated there were 10 million tons of scrap in Bizonal Germany, enough to care for Western Germany and other ECA nations in western Europe, as well as take care of American requirements. Also, he said, he had been informed German steel mill scrap inventories are so large shipments to them have been stopped recently.

Reports Jap Steel Output Up

RETURNED from a 28,000-mile airplane trip around the world, Richard W. Emmerling, vice president, Charles Dreifus Co., Philadelphia, last week reported the Japanese steel industry, despite shortages of iron ore, pig iron, coal and coke, is making a strong effort to restore production to pre-war status.

He said a recent survey disclosed that about 3½ million tons of scrap are available in Japan, of which about 900,000 tons are in steel mill yards. Japan has been offering some scrap for export, but only alloy grades.

September production in Japan totaled 114,206 metric tons of rolled steel compared with 98,718 in August, bringing the total for six months to 553,190 metric tons. Production of 412,428 metric tons of pig iron and 832,829 metric tons of steel ingots in the first six months of the current fiscal year are approximately 70 to 75 per cent and 60 to 65 per cent, respectively, of the 1930-34 base period. In September, 82,787 metric tons of pig iron were produced, against 78,400 in August.

Import Ore and Coal—These increases, Mr. Emmerling said, are attributed to increased importations of iron ore and coking coal as well as increased domestic coal production. Most of the ore is from China, Malay and Hainan Island. About 270,000 tons of Brazilian ore were purchased recently. Coal is being received from the United States, Canada and Sakhalin Island.

Projected production of steel in the fiscal year is 1,200,000 tons but it may not reach much, if any, over 1 million tons. This compares with prewar production of upward of 6 million tons annually, including that produced in Manchuria.

First of a group of American experts requested by SCAP to aid in improving the quality and quantity of Japanese steel production has arrived. He is J. W. Lowell, with the Carnegie-Illinois Steel Corp. for the past 17 years and an authority on hot strip rolling mills.

Small Exports—Japanese steel exports are only a small percentage of total output, Mr. Emmerling reports, such being subject to advance allocation by the Economic Stabilization Board and the Iron & Steel Bureau of the Ministry of Commerce with the approval of SCAP. While these authorities do not approve of exporting much metal, this year export of 20,000 tons of sheets to South America was permitted on a barter basis, and about 10,000 tons of seamless tubing were exported to Arabia and the United States. Tubing prices are above $200 per ton.

Mr. Emmerling said that in the Philippines the only scrap in the country now available is that which is located at considerable distance from Manila.

Hanna Changes View on Seaway

ONE of the leading Midwest opponents to the St. Lawrence Seaway project has reversed its stand and now is favoring it. Last week it became known that M. A. Hanna Co. Cleveland, iron ore, coal mine and lake vessel operator, which is developing iron ore deposits in Quebec and Labrador, has changed its position on the proposed seaway. The company's president, George M. Humphrey, in letters to U. S. Senator Robert A. Taft and John W. Bricker urged them to give thoughtful review to the entire subject of the seaway.

"Our company," Mr. Humphrey is quoted, "has been active in opposing the St. Lawrence Waterway for a number of years because we believed that there was not sufficient tonnage to move over it that would be of benefit to the great Midwest section of the United States.

New Facts—"We now find that new facts have developed which entirely change the situation. Explorations in the last few years have now definitely proven that large tonnages of high-grade iron ore exist in Quebec and Labrador.

"The development of this ore contemporaneously with the gradual decline in our own high-grade reserves makes it most important that our Midwest steel plants and the enormous industry dependent upon them have the benefit of having this ore brought to them through the St. Lawrence Seaway to maintain competitive positions in their present locations," Mr. Humphrey explained.

The Hanna company still opposes the St. Lawrence proposal solely as a power project, but, said Mr. Humphrey, "in view of the multipurpose to be gained as indicated by new developments, we strongly favor the project providing that power development will be limited to economic justification."

Model Aluminum House

Alcoa designs and builds experimental ranch-style home at New Kensington, Pa.

This experimental aluminum house was designed and constructed by Aluminum Co. of America at New Kensington, Pa.

UNIQUE departure in small home construction—result of several years' light metals research in housing—is indicated in an experimental, all-aluminum, ranch-type home located at New Kensington, Pa.

Designed and constructed by Aluminum Co. of America, Pittsburgh, it will be used as an adjunct to aluminum "research in housing" tests currently being conducted by Alcoa.

Practicality of each aluminum building product involved has been thoroughly investigated. The 1-story home employs the metal in nearly all phases of construction. Experimental applications include such innovations as an aluminum pipe radiant heating system, aluminum plumbing, aluminum foil wall insulation and honeycombed aluminum partitions.

Experimental Home — Alcoa officials point out the home is experimental, and not a venture by the company into production of shop-fabricated aluminum houses. Since it was constructed exclusively for use in the study of aluminum as a residential building material, hand tool fabricating costs were not projected to production line costs. Alcoa, therefore, has no cost estimate of the house if a fabricator were to manufacture a similar aluminum home or its component parts on a mass production basis.

Incorporating all principal construction features of modern design, the home utilizes more than 7000 lb of aluminum for such applications as exterior wall panels, roofing, window frames, doors, piping, insulation, electrical wiring, thresholds, kitchen cabinets, baseboards, hardware, gutters and downspouts, and a score of miscellaneous uses.

Aluminum Wall Panel—Basic construction unit of the test house is a load-bearing wall panel, formed from aluminum sheet. Of large, modular size, these 2 ft x 8 ft vertical sections are designed for rapid, low-cost erection and permit considerable design flexibility in floor plan layout. Similarly constructed, the roof is self-supporting and formed entirely of aluminum sheet panels. It is sufficiently strong to support the ceiling without employing cumbersome structural members. Several methods of timesaving fastener details have also been incorporated for rapid assembly of wall and roof pans into the finished structure.

The experimental, 1-story structure features such design advantages as aluminum-framed picture windows, sectional parquetry flooring, a stone-and-aluminum decorated fireplace equipped with aluminum andirons and attachments, a modern, covetype bathroom and an all-aluminum garage fitted with a balanced aluminum overhead door that can be opened or closed with one's finger. Almost 800 lineal feet of aluminum pipe for radiant heating have been laid beneath the flooring in all rooms.

Picture Windows—The living room and dining alcove contain one 12-ft and one 8-ft wide aluminum picture window, aluminum thresholds and baseboards, and wood and aluminum furnishings of contemporary design. Three commodious bedrooms, with large closets, are finished in pastel colors and have generous window areas with cross ventilation. Kitchen, bathroom, utility room, and garage are equipped with electrical household aids.

Much of the home's 55 lineal feet of interior partitions consist of a 1-inch "sandwich" of honeycomb core material faced with aluminum sheet. These thin, strong partitions contribute to the usable floorspace in the house. While considerable interior wall finish is aluminum, conventional partitions and wall finishes as plaster and plywood have also been installed.

Attached Garage — The attached garage has been constructed of sheet aluminum, formed to simulate clapboard. Assembly details allow application of virtually every type of interior wall finish. Sectional aluminum wall and roof panels—160 of

The home's kitchen features an entire wall of aluminum cabinets. Drawers, shelving, molding, trim and window casement have also been formed from the metal

them—are bonded on the inside with ¾-in. fiberboard for sound deadening and insulating purposes.

The natural finish aluminum roof, designed for proper drainage, will reflect much of the hot summer sun and keep interior temperatures proportionately low, according to company engineers. Non-warping aluminum windows and bonded aluminum doors, light in weight and easy to operate, are installed throughout.

Machine Tool Slump Continues

NEW orders for machine tools declined for the fifth consecutive month in October, establishing a new low for the year. October's new orders were 67.5 per cent of 1945-46-47 average shipments, according to the National Machine Tool Builders' Association, Cleveland.

The decline during the month represented a fairly sizable drop from the 73.1 per cent recorded in September. Foreign orders, however, which are included in the total, rose to 14 per cent of average shipments for the base years from 11.6 per cent in September.

Machine tool shipments for October also declined to 80.5 per cent of 1945-46-47 average shipments from 84.7 per cent in the preceding month. Ratio of unfilled orders to shipments remained constant at 4.2 to 1, but is at the lowest point for this year.

Chance Vought Moving To Texas

CHANCE Vought Airplane Corp. began the past week transfer of its engineering personnel from Stratford, Conn., to Dallas, Tex.

The jet Pirate F6U-1, now being produced at the Stratford plant, will be assembled at the Dallas plant, coming off the assembly lines in February. The F4U05 Corsair is expected to come off the Dallas line about April.

Pig Iron Output Sets Record

PRODUCTION of pig iron set an all-time monthly record in October at 5,459,000 net tons, the American Iron & Steel Institute reports.

The October tonnage compared with 5,164,200 tons in September and 5,163,700 tons in October, 1947. Ten months, 1948, production totaled 49,288,900 tons, an increase of nearly 817,200 tons over the corresponding period in 1947. Including ferromanganese and spiegeleisen, blast furnace cutput in October was 5,520,400 tons, also a record, bringing the total for 10 months to 49,862,700 tons, 847,300 tons more than a year earlier.

Blast furnaces were operated at 96.6 per cent of capacity in October, bringing the rate for 10 months to 88.7 per cent. If the recent rate of blast furnace production is sustained through the balance of 1948, total for the year will exceed 60 million tons of pig iron and ferroalloys, exceeding 1947 production by approximately 1 million tons.

May Get More Sheet Bar

Apollo sheet mill's semifinished supply undisturbed by sale of Phoenix works to Kaiser

PURCHASE of the Phoenix-Apollo Steel Co. plant at Phoenixville, Pa., by Kaiser-Frazer Corp. (STEEL, page 45, Nov. 22) will not disturb the movement of sheet bar from this plant to Phoenix-Apollo's sheet rolling mill at Apollo, Pa., in fact, may even increase such shipments.

K-F has agreed to deliver a minimum of 12,000 tons of sheet bar monthly at an agreed price to the Apollo mill. It believes that by virtue of its ability to supply increased amounts of raw material, principally pig iron, to the open-hearth plant at Phoenixville it will be able to step up output there appreciably from the 26,000 tons realized in October which, incidentally, was the highest monthly tonnage produced there since the present management took over.

Frank S. Gibson, Jr., chairman of Phoenix-Apollo, and secretary-treasurer of the Gibson Refrigerator Co., Greenville, Mich., states P-A will retain full ownership of the Apollo sheet rolling mill. The Gibson company will continue to receive the same share of Apollo's output as before the K-F deal.

Slowdown Expected in Building

MODERATE declines in physical volume of private residential and nonresidential building and moderate increases in public building and engineering projects are likely in 1949, according to estimates by F. W. Dodge Corp., New York, on the basis of present information. It appears the number of dwelling units to be built next year will be 7 per cent less than in 1948, bringing the total for the 48 states to about 884,000.

Other classifications of building for which declines are anticipated are: Commercial buildings, 9 per cent; manufacturing buildings, 15 per cent; churches, 19 per cent; social and recreational buildings, 14 per cent. However, increases of 10 per cent are expected in educational and science buildings and 11 per cent in hospitals and institutional buildings.

Automakers To Hear Sawyer

CHARLES SAWYER, secretary of commerce, and Charles F. Kettering, research consultant and a director of General Motors Corp., will be featured speakers at a formal dinner in Detroit, Dec. 9, scheduled to be the official automotive industry observance of the production of 100 million vehicles between 1896 and 1948. It will be the first public appearance of Mr. Sawyer in Detroit since his appointment to the cabinet post last April.

Calendar of Meetings . . .

Nov. 29-Dec. 4, 18th National Exposition of Power & Mechanical Engineering: Power Show, Grand Central Palace, New York.

Nov. 30, Pressed Metal Institute: New England District Meeting, Sheraton Hotel, Worcester, Mass. Institute headquarters are at 829 Union Commerce Bldg., Cleveland.

Dec. 1-3, National Association of Manufacturers: Congress of American Industry, Waldorf-Astoria, New York.

Dec. 2-4, Society for Experimental Stress Analysis: Annual meeting, Hotel Commodore, New York. Society address is P.O. Box 168, Cambridge, Mass.

Dec. 2-4, Electric Furnace Steel Committee, Iron & Steel Division, AIME: Sixth annual conference, William Penn Hotel, Pittsburgh.

Dec. 2-4, American Metallizing Contractors Association: Annual meeting, Mayo Hotel, Tulsa, Okla. Association headquarters are at 773 Brownell Ave., St. Louis.

Dec. 3, American Society of Mechanical Engineers: 27th annual meeting of the textile division, at Hotel Pennsylvania, New York.

Dec. 3, Magnesium Association and Mellon Institute: Meeting on magnesium, Mellon Institute Auditorium, Pittsburgh.

Dec. 6-8, American Institute of Electrical Engineers: Conference on electric welding, Rackham Memorial Bldg., Detroit. Institute headquarters are at 33 W. 39th St., New York.

Dec. 6-10, Machine Tool, Metal Working & Welding Equipment Show: Sponsored by Austin-Hastings Co. Inc., at Hartford Times Radio Center Bldg., Hartford, Conn.

Dec. 7-8, Diesel Engine Manufacturers Association: Meeting at Union League Club, Chicago. Association headquarters are at 1 N. LaSalle St., Chicago.

Dec. 10-11, Machinery & Allied Products Institute: Fourth conference in capital goods economics, at Hotel Mayflower, Washington. Washington office of the institute is at 910 17th St., NW.

Dec. 26-31, American Association for Advancement of Science: Annual meeting, Stevens and Sherman Hotels, Chicago.

Jan. 10-14, Materials Handling Institute and American Society of Mechanical Engineers: Materials handling show, in Philadelphia. ASME's management and materials handling divisions will conduct a five-day materials handling conference concurrently with the exposition.

Jan. 16-20, Associated Equipment Distributors: 30th annual meeting, Hotel Stevens, Chicago. Group's executive office is at 360 N. Michigan Ave., Chicago.

Steel Industry Statistics

STEEL
A PENTON PUBLICATION

NOVEMBER 29, 1948

Presented here are the first detailed statistics released by the American Iron & Steel Institute on the changes which have taken place in the steel industry since the end of World War II. These statistics taken from the Institute's new 1948 directory show capacity to produce pig iron, coke, steel ingots and finished steel products for the entire industry, as well as each individual company

VERY few years, the American Iron & Steel Institute publishes a irectory of the Iron and Steelworks of the United States and Canada iowing in detail the facilities of each steel company, as well as the nnage and variety of products produced. As a service to the metal-roducing and metalworking industry, STEEL presents on these 16 pages ie summary tables from the new, 1948 directory with the permission the Institute. These statistics are especially significant in that ey reflect the changes which have taken place in the steel industry ring the war and since it ended. While the Institute regularly issues oduction and other data, no statistics have been revealed about dividual companies since 1945, when the Institute last published its rectory as summarized in the Dec. 17, 1945 issue of STEEL. Prior 1945, no directory had been issued since 1938. It is impossible to tail all the changes which have taken place company-by-company id product-by-product, but many of the significant points are covered. he industry now has the largest capacity to produce pig iron and ke in its history. Technical developments in the making promise that en these figures will be eclipsed in the next few years. Steel ingot pacity also is almost back to its wartime peak. Included in the data esented here are tables showing the names of producers of over 30 nished steel products. For the first time since 1938, capacity figures r these products are on a "practical" basis as the government re-ired so-called maximum potential capacities during the war so that could be determined quickly whether emergency needs for a given oduct could be met. Home office of each producer can be readily cated by referring to the tables on pages 42 and 44. The industry spending huge sums for facilities which will make better products, though a $3.5 million blast furnace by prewar standards now costs million and other equipment is proportionately higher. Other millions e going into research.

CONTENTS

Pig Iron

Blast furnaces in United States now capable of exceeding ever wartime peak production. Larger furnaces and improvement in operating techniques promise further expansion

CAPACITY of blast furnaces in the United States to produce pig iron and ferroalloys stood at an all-time peak of 67,438,930 net tons on Jan. 1, 1948, even exceeding the wartime high when idle and obsolete stacks were patched up and pressed into service to meet the emergency.

Since the close of the war, some of these relics have been junked, others have been replaced or are in the process of being replaced by modern stacks. Blast furnace men today are talking about 2000 ton-a-day furnaces with 30-ft hearths. Significantly, some furnaces built in the past few years in the 26 to 28-ft range have, without fanfare, been producing over 1900 tons daily.

Improvements in blast furnace practice may aid the industry in turning out more iron with present furnaces. For example, several furnaces are being converted to utilize the top-pressure system developed during the war and experiments with oxygen to speed up the reduction process now are under way at Bethlehem Steel Co.'s Johnstown, Pa. plant.

Blast Furnace Capacity by Companies

	Pig Iron		Ferroalloys		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Companies:					
Alan Wood Steel Company	2	454,800	...	.....	454,800
Armco Steel Corporation	5	1,302,000	...	.....	1,302,000
Sheffield Steel Corporation	1	274,000	...	.....	274,000
TOTAL	6	1,576,000	...	.....	1,576,000
Bethlehem Steel Company	29	9,690,000	2	180,000	9,870,000
Brooke Iron Company (E. & G.)	1	151,200	...	.....	151,200
Colorado Fuel and Iron Corporation	6	1,240,000	...	.....	1,240,000
Crucible Steel Company of America	2	532,000	...	.....	532,000
Eastern Gas and Fuel Associates	1	176,400	...	.....	176,400
Ford Motor Company	2	504,000	...	.....	504,000
Globe Iron Company	...	.....	1	90,000	90,000
Inland Steel Company	8	2,929,000	...	.....	2,929,000
Interlake Iron Corporation	6	1,244,860	...	.....	1,244,860
International Detrola Corporation	1	144,000	...	.....	144,000
International Harvester Company	3	719,710	...	.....	719,710
Jackson Iron & Steel Company	...	.....	1	90,000	90,000
Jones & Laughlin Steel Corporation	13	4,080,000	...	.....	4,080,000
Kaiser Company, Inc.	1	413,100	...	.....	413,100
Kaiser & Frazer Parts Corporation	(a) 2	(a) 482,500	...	.....	182,500
Lavino & Company, E. J.	...	.....	2	72,000	72,000
Lone Star Steel Company	1	394,800	...	.....	394,800
Missouri-Illinois Furnaces, Inc.	2	465,000	...	.....	465,000
National Steel Corporation:					
Great Lakes Steel Corporation	3	1,100,000	...	.....	1,100,000
Hanna Furnace Corporation	3	594,180	1	120,000	714,180
Weirton Steel Company	3	1,240,000	...	.....	1,240,000
TOTAL	9	2,934,180	1	120,000	3,054,180
New Jersey Zinc Company	...	.....	2	134,400	134,400
Pittsburgh Coke & Chemical Company	1	291,600	...	.....	291,600
Pittsburgh Steel Company	2	554,000	...	.....	554,000
Portsmouth Steel Corporation	1	264,600	...	.....	264,600
Republic Steel Corporation	21	6,327,000	...	.....	6,327,000
Sharon Steel Corporation	3	709,620	...	.....	709,620
Shenango Furnace Company	2	417,300	...	.....	417,300
Sloss-Sheffield Steel & Iron Company	3	386,470	1	36,800	423,270
Tennessee Products & Chemical Corp.	(b) 1	40,320	(c) 2	33,600	73,920
Tonawanda Iron Corporation	1	171,000	...	.....	171,000
United States Steel Corporation:					
American Steel & Wire Company	6	1,429,400	...	.....	1,429,400
Carnegie-Illinois Steel Corporation	48	16,353,800	4	311,200	16,665,000
Geneva Steel Company	4	1,349,200	...	.....	1,349,200
National Tube Company	9	3,042,400	...	.....	3,042,400
Tennessee Coal, Iron & Railroad Co.	9	2,345,500	(d)	29,000	2,374,500
TOTAL	76	24,520,300	4	340,200	24,860,500
Valencia Iron & Chemical Corp.	(e) 1	(e) 27,000	...	.....	.....
Wheeling Steel Corporation	3	846,000	...	.....	846,000
Woodward Iron Company	3	526,170	...	.....	526,170
Youngstown Sheet & Tube Company	12	3,456,000	...	.....	3,456,000
GRAND TOTAL	223	66,341,930	16	1,097,000	67,438,930

Some integrated steel companies over the pas few years have been noticeably shrinking the sprea between blast furnace and steelmaking capacity, ap parently with the view of solving their metallic problem. One company, for instance, has increase blast furnace capacity 50 per cent in the past te years, steelmaking capacity 32 per cent. Anothe has about doubled blast furnace capacity, whil increasing steel capacity only 10 per cent. For th entire industry, however, increases in blast furnac capacity have kept pace with steelmaking at 20 an 17 per cent, respectively.

Notes on company changes since Jan. 1, 1945 U. S. Steel's 76 furnaces have greater capacity tha the 78 listed three years ago. Bethlehem has droppe one stack at Lakawanna, added one at Sparrows Poin leaving the total unchanged at 29.

Republic and National still have 21 and nine fu naces, respectively, but have upped capacity slightl Colorado Fuel & Iron added two furnaces for total of six through purchase of Wickwire Spence Inland purchased two government furnaces at I diana Harbor, bringing its total to eight.

The Valencia furnace at Rusk, Texas, built wit German capital at Pembroke, Fla. to produce pho phorus, was moved to Texas with Defense Plant Cor money during the war. The famous Michigan cha coal pig iron industry now is extinct with the elimina tion of the Newberry Lumber & Chemical Co. fu nace at Newberry. Tennessee Products still mak charcoal Iron at Lyles-Wrigley, Tenn.

COMPARATIVE BLAST FURNACE CAPACITIES BY COMPANIE (Net Tons)

	Jan. 1, 1948	Jan. 1, 1945	Jan. 1, 19
United States Steel Corp.	24,860,500	24,599,600	22,926,40
Bethlehem Steel Co.	9,870,000	9,654,000	7,378,56
Republic Steel Corp.	6,327,000	6,324,000	4,256,00
Jones & Laughlin Steel Corp.	4,080,000	4,080,000	3,541,44
Youngstown Sheet & Tube Co.	3,456,000	3,456,000	3,192,00
National Steel Corp.	3,054,180	3,014,180	2,363,98
Inland Steel Co.	2,929,000	2,236,000	1,486,24
Armco Steel Corp.	1,576,000	1,594,000	766,08
Interlake Iron Corp.	1,244,860	1,332,500	1,360,80
Colorado Fuel & Iron Corp.	1,240,000	798,000	630,56

TREND IN BLAST FURNACE CAPACITY—(Net Tons)

As of Jan. 1	Coke Pig Iron	Charcoal Pig Iron	Ferro-alloys	Total
1948	66,301,610	40,320	1,097,000	67,438,9
1947	64,674,020	32,480	1,002,700	65,709,2
1946	66,311,410	32,480	996,700	67,340,5
1945	66,256,810	64,480	992,600	67,313,8
1944	66,344,780	56,190	990,300	67,391,2
1943	62,859,330	107,200	967,000	63,933,5
1942	59,211,850	106,560	1,075,570	60,393,9
1941	56,522,370	106,560	980,660	57,609,5
1940	54,635,740	95,580	992,320	55,723,6
1939	55,162,374	103,040	1,060,416	56,325,8
1938	55,618,752	103,040	1,060,416	56,782,2
1937	54,418,489	103,040	1,035,776	55,557,3
1936	54,803,720	103,040	947,520	55,854,2
1935	55,999,710	150,640	947,520	57,097,8
1934	56,209,620	150,640	883,008	57,243,2
1933	55,452,964	159,040	898,688	56,510,6

BLAST FURNACE CAPACITY BY PLANT LOCATION AND OPERATING COMPANY

	Pig Iron		Ferroalloys		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Alabama					
Birmingham					
Republic Steel Corporation	2	376,000	...	.....	376,000
Sloss-Sheffield Steel & Iron Company	2	281,230	...	.....	281,230
Ensley					
Tennessee Coal, Iron & Railroad Co.	6	1,360,600	(d)	29,000	1,389,600
Fairfield					
Tennessee Coal, Iron & Railroad Co.	3	984,900	...	.....	984,900
Gadsden					
Republic Steel Corporation	2	471,000	...	.....	471,000
North Birmingham					
Sloss-Sheffield Steel & Iron Company	1	105,240	1	36,800	142,040
Woodward					
Woodward Iron Company	3	526,170	...	.....	526,170
TOTAL	19	4,105,140	1	65,800	4,170,940
California					
Fontana					
Kaiser Company, Inc.	1	413,100	...	.....	413,100
Colorado					
Pueblo					
Colorado Fuel and Iron Corporation	4	850,000	...	.....	850,000
Illinois					
Chicago					
Interlake Iron Corporation	2	448,020	...	.....	448,020
Granite City					
Missouri-Illinois Furnaces, Inc.	2	465,000	...	.....	465,000
South Chicago					
Carnegie-Illinois Steel Corporation	10	3,401,600	...	.....	3,401,600
International Harvester Company	3	719,710	...	.....	719,710
Republic Steel Corporation	1	450,000	...	.....	450,000
Youngstown Sheet and Tube Company	3	684,000	...	.....	684,000
TOTAL	21	6,168,330	...	.....	6,168,330
Indiana					
East Chicago					
Youngstown Sheet and Tube Company	2	619,200	...	.....	619,200
Gary					
Carnegie-Illinois Steel Corporation	12	4,402,700	...	.....	4,402,700
Indiana Harbor					
Inland Steel Company	8	2,929,000	..	.....	2,929,000
TOTAL	22	7,950,900	...	.....	7,950,900
Kentucky					
Ashland					
Armco Steel Corporation	3	738,000	...	.....	738,000
Maryland					
Sparrows Point					
Bethlehem Steel Company	8	3,252,000	...	.....	3,252,000
Massachusetts					
Everett					
Eastern Gas and Fuel Associates	1	176,400	...	.....	176,400
Michigan					
Dearborn					
Ford Motor Company	2	504,000	...	.....	504,000
River Rouge					
Great Lakes Steel Corporation	3	1,100,000	...	.....	1,100,000
TOTAL	5	1,604,000	...	.....	1,604,000
Minnesota					
Duluth					
American Steel & Wire Company	2	449,400	...	.....	449,400
Interlake Iron Corporation	1	131,660	...	.....	131,660
TOTAL	3	581,060	...	.....	581,060
New York					
Buffalo					
Hanna Furnace Corporation	3	594,180	1	120,000	714,180
Republic Steel Corporation	2	565,000	...	.....	565,000
Lackawanna					
Bethlehem Steel Company	6	2,232,000	...	.....	2,232,000
North Tonawanda					
Tonawanda Iron Corporation	1	171,000	...	.....	171,000
Tonawanda					
Colorado Fuel & Iron Corporation	2	390,000	...	.....	390,000
Troy					
Republic Steel Corporation	1	263,000	...	.....	263,000
TOTAL	15	4,215,180	1	120,000	4,335,180
Ohio					
Campbell					
Youngstown Sheet and Tube Company	4	1,450,800	...	.....	1,450,800
Canton					
Republic Steel Corporation	1	235,000	...	.....	235,000
Cleveland					
American Steel & Wire Company	2	530,000	...	.....	530,000
Jones & Laughlin Steel Corporation	2	480,000	...	.....	480,000
Republic Steel Corporation	5	1,619,000	...	.....	1,619,000
Hamilton					
Armco Steel Corporation	2	564,000	...	.....	564,000
Hubbard					
Youngstown Sheet and Tube Company	1	200,400	...	.....	200,400
Jackson					
Globe Iron Company	...	.....	1	90,000	90,000
Jackson Iron & Steel Company	...	.....	1	90,000	90,000
Lorain					
National Tube Company	5	1,764,400	...	.....	1,764,400
Lowellville					
Sharon Steel Corporation	1	148,620	...	.....	148,620
Martins Ferry					
International Detrola Corporation	1	144,000	...	.....	144,000
Massillon					
Republic Steel Corporation	1	238,000	...	.....	238,000
Portsmouth					
Portsmouth Steel Corporation	1	264,600	...	.....	264,600
Steubenville					
Wheeling Steel Corporation	2	612,000	...	.....	612,000
Struthers					
Kaiser & Frazer Parts Corporation	1	182,500	...	.....	182,500
Toledo					
Interlake Iron Corporation	2	497,600	...	.....	497,600
Warren					
Republic Steel Corporation	1	450,000	...	.....	450,000
Youngstown					
Carnegie-Illinois Steel Corporation	6	1,891,600	...	.....	1,891,600
Republic Steel Corporation	5	1,660,000	...	.....	1,660,000
Youngstown Sheet and Tube Company	2	501,600	...	.....	501,600
TOTAL	45	13,434,120	2	180,000	13,614,120
Pennsylvania					
Aliquippa					
Jones & Laughlin Steel Corporation	5	1,800,000	...	.....	1,800,000
Bethlehem					
Bethlehem Steel Company	7	1,920,000	...	.....	1,920,000
Birdsboro					
Brooke Iron Company, E. & G.	1	151,200	...	.....	151,200
Braddock					
Carnegie-Illinois Steel Corporation	7	2,602,700	...	.....	2,602,700
Clairton					
Carnegie-Illinois Steel Corporation	1	321,100	2	166,300	487,400
Donora					
American Steel & Wire Company	2	450,000	...	.....	450,000
Duquesne					
Carnegie-Illinois Steel Corporation	6	1,601,100	...	.....	1,601,100
Erie					
Interlake Iron Corporation	1	167,580	...	.....	167,580
Etna					
Carnegie-Illinois Steel Corporation	...	.....	2	144,900	144,900
Farrell					
Sharon Steel Corporation	2	561,000	...	.....	561,000
Johnstown					
Bethlehem Steel Company	5	1,494,000	2	180,000	1,674,000
McKeesport					
National Tube Company	4	1,278,000	...	.....	1,278,000
Midland					
Crucible Steel Company of America	2	532,000	...	.....	532,000
Monessen					
Pittsburgh Steel Company	2	554,000	...	.....	554,000
Neville Island					
Pittsburgh Coke & Chemical Company	1	291,600	...	.....	291,600
Palmerton					
New Jersey Zinc Company	...	.....	2	134,400	134,400
Pittsburgh					
Jones & Laughlin Steel Corporation	6	1,800,000	...	.....	1,800,000
Rankin					
Carnegie-Illinois Steel Corporation	6	2,133,000	...	.....	2,133,000
Sharpsville					
Shenango Furnace Company	2	417,300	...	.....	417,300
Sheridan					
Lavino and Company, E. J.	...	.....	1	36,000	36,000
Steelton					
Bethlehem Steel Company	3	792,000	...	.....	792,000
Swedeland					
Alan Wood Steel Company	2	454,800	...	.....	454,800
TOTAL	65	19,321,380	9	661,600	19,982,980
Tennessee					
Lyles-Wrigley					
Tennessee Products & Chemical Corp.	(b) 1	40,320	...	.....	40,320
Rockwood					
Tennessee Products & Chemical Corp.	...	.....	(c) 2	33,600	33,600
TOTAL	1	40,320	2	33,600	73,920
Texas					
Daingerfield					
Lone Star Steel Company	1	394,800	...	.....	394,800
Houston					
Sheffield Steel Corporation	1	274,000	...	.....	274,000
Rusk					
Valencia Iron & Chemical Corporation	(e) 1	(e) 27,000	...	.....	.....
TOTAL	2	668,800	...	.....	668,800
Utah					
Geneva					
Geneva Steel Company	3	1,150,000	...	.....	1,150,000
Ironton					
Kaiser & Frazer Parts Corporation	(f) 1	300,000	...	.....	.....
Geneva Steel Company	1	199,200	...	.....	199,200
TOTAL	4	1,349,200	...	.....	1,349,200
Virginia					
Lynchburg					
Lavino and Company, E. J.	...	.....	1	36,000	36,000
West Virginia					
Benwood					
Wheeling Steel Corporation	1	234,000	...	.....	234,000
Weirton					
Weirton Steel Company	3	1,240,000	...	.....	1,240,000
TOTAL	4	1,474,000	...	.....	1,474,000
GRAND TOTAL	223	66,341,930	16	1,097,000	67,438,930

(a) One of these furnaces with capacity of 300,000 tons is idle, not included in total.
(b) Charcoal furnace.
(c) One of these furnaces is idle, capacity of which is not included.
(d) Furnace included under pig iron.
(e) Charcoal furnace under construction, not included in total.
(f) Last operated in 1943, not included in total.

Steel Company Names and Addresses

Acme Steel Co.
2840 Archer Ave., Chicago 8, Ill.
Agaloy Tubing Co.
P. O. Box 99, Sheepshead Bay Station, Brooklyn 29, N. Y.
Alan Wood Steel Co.
Conshohocken, Pa.
Algoma Steel Corp. Ltd.
Sault Ste. Marie, Ontario, Can.
Allegheny Ludlum Steel Corp.
Brackenridge, Pa.
Alloy Metal Wire Co.
Prospect Park, Pa.
American Chain & Cable Co., Inc.
929 Connecticut Ave.
Bridgeport 2, Conn.
American Locomotive Co.
30 Chruch St., New York, N. Y.
American Metal Products Co.
5959 Linsdale Ave.
Detroit 4, Mich.
American Shim Steel Co.
Second Ave. & Sixth St.
New Kensington, Pa.
American Steel & Wire Co.
Rockefeller Bldg.
Cleveland, 13, O.
American Swedo Iron Corp.
400 Railroad St., Danville, Pa.
Ames & Co., Inc., W.
417 Communipaw Ave.
Jersey City 4, N. J.
Anchor Drawn Steel Co.
Latrobe, Pa.
Angell Nail & Chaplet Co.
4580 E. 71st St., Cleveland 5, O.
Armco Steel Corp., Middletown, O.
Atlantic Steel Co.
P. O. Box 1714, Atlanta 1, Ga.
Atlantic Wire Co.
1 Chruch St., Branford, Conn.
Atlas Steels, Ltd.
Welland, Ontario, Canada
Babcock & Wilcox Tube Co.
Beaver Falls, Pa.
Baldwin Locomotive Works
Burnham, Miffin County, Pa.
Barium Steel & Forge, Inc.
1502 Allen Ave., S. E.
Canton 1, O.
Bethlehem Steel Co., Bethlehem, Pa.
Bethlehem Pacific Coast Steel Corp.
San Francisco 19, Calif.
Blair Strip Steel Co.
1209 Butler Ave., New Castle, Pa.
Bliss & Laughlin, Inc. Harvey, Ill.
Boiardi Steel Corp., Milton, Pa.
Borg-Warner Corp.
310 South Michigan Ave.
Chicago 4, Ill.
Braeburn Alloy Steel Corp.
Braeburn, Pa.
Brainard Steel Co., Warren, O.
Brooke Iron Co. (E. & G.)
Birdsboro, Pa.
Buffalo Bolt Co.
101 East Ave.
North Tonawanda, N. Y.
Buffalo Steel Co.
Tonawanda, N. Y.
Bundy Tubing Co.
8109 E. Jefferson Ave.
Detroit 14, Mich.
Burlington Steel Co., Ltd.
Sherman Ave., North Hamilton, Ontario, Canada
Byers Company, A. M.
Clark Bldg., Pittsburgh 22, Pa.
California Cold Rolled Steel Corp.
7140 Anaheim-Telegraph Road
Los Angeles 22, Calif.
California Wire Cloth Corp.
1001 22nd Ave., Oakland, Calif.
Canadian Car & Foundry Co., Ltd.
621 Craig St., West Montreal, Quebec, Canada
Canadian Furnace, Ltd.
Port Colborne, Ontario, Canada
Canadian Tube & Steel Products, Ltd., 5765 Hamilton St.
Montreal, P. Q., Canada
Carnegie-Illinois Steel Corp.
Carnegie Bldg., Pittsburgh, Pa.
Carpenter Steel Co.
101 West Bern St., Reading, Pa.
Case Company, J. I., Racine, Wisc.
Central Iron & Steel Co.
Harrisburg, Pa.
Chicago Steel & Wire Co.
10257 Torrence Ave.
Chicago 17, Ill.
Cleveland Cold Rolling Mills Co.
Stroud Road, R.F.D.-1, Bearea, O.
Cold Metal Products Co.
2131 Wilson Ave.
Youngstown 1, O.
Colonial Steel Co.
2400 Grant Bldg.
Pittsburgh 19, Pa.
Colorado Fuel & Iron Corp.
Continental Oil Bldg.
Denver 2, Colo.
Columbia Steel Co.
Russ Bldg., San Francisco 6, Calif.
Columbia Steel & Shafting Co.
P. O. Box 1557, Pittsburgh 30, Pa.
Columbia Tool Steel Co.
Lincoln Highway & State St.
Chicago Heights, Ill.
Compressed Steel Shafting Co.
1587 Hyde Park Ave.
Readville, Mass.
Connors Steel Co.
Birmingham 1, Ala.
Continental Steel Corp.
Kokomo, Ind.
Copperweld Steel Co., Glassport, Pa.
Crucible Steel Co. of America
405 Lexington Ave.
New York 17, N. Y.
Cumberland Steel Co.
Cumberland, Md.
Cuyahoga Steel & Wire Co.
Longwood Ave., Maple Heights
Cleveland 5, O.
Davis Wire & Cable Corp., K. H.
2417 E. 23rd St.
Los Angeles 11, Calif.
Detroit Steel Corp.
P. O. Box D, Porter Sta.
Detroit 9, Mich.
Detroit Tube & Steel Co.
Box A—Grand River Station
Detroit 8, Mich.
Disston & Sons, Inc., Henry
126 Tacony
Philadelphia 35, Pa.
Dominion Foundries & Steel, Ltd.
Hamilton, Ontario, Canada
Dominion Steel & Coal Corp., Ltd.
Sydney, N. S., Canada
Donner-Hanna Coke Corp.
Abby & Mystic Sts.
Buffalo 20, N. Y.
Driscoll Wire Co., Shelton, Conn.
Driver Co., Wilbur B.
150 Riverside Ave.
Newark 4, N. J.
Eastern Gas & Fuel Associates
250 Stuart St., Boston 16, Mass.
Eastern Stainless Steel Corp.
P. O. Box 1975, Baltimore 3, Md.
Edgewater Steel Co.
P. O. Box 478 Pittsburgh 30, Pa.
Elliott Brothers Steel Co.
New Castle, Pa.
Empire Steel Co., Mansfield, O.
Erie Forge Co., Erie, Pa.
Erie Forge & Steel Co., Erie, Pa.
Ewald Iron Co.
231 W. Main St., Louisville, Ky.
Falls Hollow Staybolt Co.
7 Portage Trail
Cuyahoga Falls, O.
Firth-Sterling Steel & Carbide Corp.
2201-3299 Demmler Road
McKeesport, Pa.
Fitzsimons Steel Co.
1623 Wilson Ave.
Youngstown 8, O.
Follansbee Steel Corp.
Third and Liberty Aves.
Pittsburgh, Pa.
Ford Motor Co.
3000 Schaefer Road
Dearborn, Mich.
Fort Howard Steel & Wire
State & Ninth Sts.
Green Bay, Wis.
Fretz-Moon Tube Co., Inc.
Butler, Pa.
Frick Coke Co., H. C.
Frick Bldg., Pittsburgh, Pa.
Geneva Steel Co., Geneva, Utah
Globe Iron Co., Jackson, O.
Globe Steel Tubes Co.
3839 W. Burnham St.
Milwaukee 4, Wis.
Granite City Steel Co.
20th and Madison Ave.
Granite City, Ill.
Great Lakes Steel Corp.
Tecumseh Rd., Ecorse
Detroit 18, Mich.
Greer Steel Co., Dover, O.
Griffin Manufacturing Co.
Cherry and Huron Sts., Erie, Pa.
Hanna Furnace Corp.
Ecorse, Detroit 18, Mich.
Harrisburg Steel Corp.
Harrisburg, Pa.
Heller Brothers Co.
865 Mt. Prospect Ave.
Newark 4, N. J.
Heppenstall Co.
4620 Hatfield St.
Pittsburgh 1, Pa.

(*Continued on Page 44*)

Coke

Steel Industry's coke capacity sets new record as addition of modern ovens more than offsets abandonment of beehive type

COKE producing capacity of the steel industry stood at a new all-time high of 62,505,840 net tons on Jan. 1, 1948. During the war, some 1800 ovens were added with capacity of about 10,000,000 tons and in the past three years alone, the American Iron & Steel Institute reports that 494 ovens were added to capacity. The latter figure, of course, include some war-built ovens, but the industry also has continued its program of rehabilitation and expansion.

The industry had 11,982 ovens Jan. 1 with a capacity of 59,699,490 tons, compared with 11,48 with capacity of 57,409,690 tons three years earlier. These ovens once were described as "by-product" but the term was dropped several years ago and they now are included under "other" in the accompanying tables.

Beehive oven capacity which has been tapering off for a number of years, except for war stimulu totaled 3790 ovens with capacity of 2,806,350 tons Jan. 1 compared with 4694 ovens and 3,446,350 tons three years ago. Elimination of 904 beehive ovens from the list was more than offset by added "by-product" oven capacity.

COKE CAPACITY BY COMPANIES

	Beehive		Other		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Companies:					
Alan Wood Steel Company	.....	.....	151	600,000	600,0
Armco Steel Corporation	.....	.....	110	480,000	480,0
Sheffield Steel Corporation	.....	.....	47	252,000	252,0
TOTAL	.....	.....	157	732,000	732,0
Bethlehem Steel Company	.....	.....	1,774	8,754,000	8,754,0
Colorado Fuel and Iron Corporation	.....	.....	266	1,000,000	1,000,0
Crucible Steel Company of America	.....	.....	121	522,000	522,0
Donner-Hanna Coke Corporation	.....	.....	216	1,214,000	1,214,0
Eastern Gas and Fuel Associates	.....	.....	204	1,112,000	1,112,0
Ford Motor Company	.....	.....	183	1,609,650	1,609,0
Inland Steel Company	.....	.....	419	2,143,400	2,143,0
Interlake Iron Corporation	.....	.....	327	1,275,800	1,275,0
International Harvester Company	.....	.....	133	600,000	600,0
Jones & Laughlin Steel Corporation	240	252,000	708	3,258,000	3,510,0
Kaiser Company, Inc.	* 500	* 300,000	90	355,000	355,0
Kaiser & Frazer Parts Corporation	.....	.....	78	375,000	375,0
Lone Star Steel Company	.....	.....	49	435,000	435,0
Missouri-Illinois Furnaces, Inc.	.....	.....			
National Steel Corporation:					
Great Lakes Steel Corporation	.....	.....	130	996,600	996,0
Weirton Coal Company	136	120,000			120,0
Weirton Steel Company	.....	.....	237	1,400,000	1,400,0
TOTAL	136	120,000	367	2,396,600	2,516,0
Pittsburgh Coke & Chemical Company	.....	.....	70	500,000	500,0
Pittsburgh Steel Company	.....	.....	74	500,000	500,0
Portsmouth Steel Corporation	.....	.....	108	450,000	450,0
Republic Steel Corporation	.....	.....	944	4,645,000	4,645,0
Sharon Steel Corporation	.....	.....	74	400,000	400,0
Carpentertown Coal & Coke Co.	408	300,000	.....	.....	300,0
TOTAL	408	300,000	74	400,000	700,0
Sloss-Sheffield Steel & Iron Company	94	60,600	120	678,000	738,0
Tennessee Products & Chemical Corp.	.....	.....	44	240,000	240,0
United States Steel Corporation:					
American Steel & Wire Company	.....	.....	270	1,309,000	1,309,0
Carnegie-Illinois Steel Corporation	.....	.....	2,817	14,255,600	14,255,6
Frick Coke Company, H. C.	2,912	2,073,750	.....	.....	2,073,7
Geneva Steel Company	.....	.....	308	1,180,600	1,180,6
National Tube Company	.....	.....	385	1,850,000	1,850,0
Tennessee Coal, Iron & Railroad Co.	.....	.....	572	2,939,350	2,939,3
TOTAL	2,912	2,073,750	4,352	21,534,550	23,608,3
Wheeling Steel Corporation	.....	.....	145	700,000	700,0
Woodward Iron Company	.....	.....	228	885,490	885,4
Youngstown Sheet and Tube Company	.....	.....	580	2,784,000	2,784,0
GRAND TOTAL	3,790	2,806,350	11,982	59,699,490	62,505,8

Of the 904, 500 were taken over by the Kaiser & razer Parts Corp. from the government at Drager- n, Utah, and are not listed as capacity by the stitute. This was part of a deal whereby Kaiser so acquired a blast furnace at Ironton, Utah. epublic has dropped 296 beehive ovens, Pittsburgh eel 510 and H. C. Frick six, while Sharon Steel s added 408 operated by the Carpentertown Coal Coke Co.

As part of its expansion program at Sparrows oint, Md., Bethlehem has added 61 ovens with pacity of 396,000 tons. National Tube's construc- tion program at Lorain includes 179 new ovens. The statistics also show 21 more for Crucible at Midland, Pa., 45 more for Jones & Laughlin at Aliquippa, Pa., and 17 fewer for Republic at Warren, O.

TREND IN COKE CAPACITY—(Net Tons)

As of Jan. 1	By-product	Beehive	Total
1948	59,699,490	2,806,350	62,505,840
1947	57,774,240	2,506,350	60,280,590
1946	57,614,390	2,806,350	60,420,740
1945	57,409,690	3,446,350	60,856,040
1944	56,574,430	3,336,550	59,910,980
1943	51,707,830	5,756,400	57,464,230
1942	50,291,830	4,239,975	54,531,805

COKE CAPACITY BY PLANT LOCATION AND OPERATING COMPANY

	Beehive		Other		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Alabama					
irmingham					
Republic Steel Corporation	.....	.....	57	235,000	235,000
airfield					
Tennessee Coal, Iron & Railroad Co.	.....	.....	572	2,939,350	2,939,350
adsden					
Republic Steel Corporation	.....	.....	102	565,000	565,000
ewisburg					
Sloss-Sheffield Steel & Iron Company	94	60,600	.....	.....	60,600
orth Birmingham					
Sloss-Sheffield Steel & Iron Company	.....	.....	120	678,000	678,000
oodward					
Woodward Iron Company	.....	.....	228	885,490	885,490
TOTAL	94	60,600	1,079	5,302,840	5,363,440
California					
Kaiser Company, Inc.	.....	.....	90	355,000	355,000
Colorado					
ueblo					
Colorado Fuel and Iron Corporation	.....	.....	266	1,000,000	1,000,000
Illinois					
hicago					
Interlake Iron Corporation	.....	.....	120	398,600	398,600
ranite City					
Missouri-Illinois Furnaces, Inc.	.....	.....	49	435,000	435,000
oliet					
Carnegie-Illinois Steel Corporation	.....	.....	280	1,122,000	1,122,000
outh Chicago					
International Harvester Company	.....	.....	133	600,000	600,000
Republic Steel Corporation	.....	.....	75	460,000	460,000
Youngstown Sheet and Tube Co.	.....	.....	70	444,000	444,000
TOTAL	.....	.....	727	3,459,600	3,459,600
Indiana					
ary					
Carnegie-Illinois Steel Corporation	.....	.....	1,055	5,676,600	5,676,600
ast Chicago					
Youngstown Sheet and Tube Co.	.....	.....	120	648,000	648,000
ndiana Harbor					
Inland Steel Company	.....	.....	419	2,143,400	2,143,400
TOTAL	.....	.....	1,594	8,468,000	8,468,000
Maryland					
parrows Point					
Bethlehem Steel Company	.....	.....	483	2,520,000	2,520,000
Massachusetts					
verett					
Eastern Gas and Fuel Associates	.....	.....	204	1,112,000	1,112,000
Michigan					
earborn					
Ford Motor Company	.....	.....	183	1,609,650	1,609,650
iver Rouge					
Great Lakes Steel Corporation	.....	.....	130	996,600	996,600
TOTAL	.....	.....	313	2,606,250	2,606,250
Minnesota					
uluth					
American Steel & Wire Company	.....	.....	90	435,000	435,000
Interlake Iron Corporation	.....	.....	41	229,000	229,000
TOTAL	.....	.....	131	664,000	664,000
New York					
uffalo					
Donner-Hanna Coke Corporation	.....	.....	216	1,214,000	1,214,000
ackawanna					
Bethlehem Steel Company	.....	.....	383	2,022,000	2,022,000
TOTAL	.....	.....	599	3,236,000	3,236,000
Ohio					
ampbell					
Youngstown Sheet and Tube Co.	.....	.....	306	1,320,000	1,320,000
anton					
Republic Steel Corporation	.....	.....	62	255,000	255,000
leveland					
American Steel & Wire Company	.....	.....	180	874,000	874,000
Jones & Laughlin Steel Corporation	.....	.....	100	360,000	360,000
Republic Steel Corporation	.....	.....	279	1,345,000	1,345,000

	Beehive		Other		Total annual capacity (N. T.)
	No. of ovens	Annual capacity (N. T.)	No. of ovens	Annual capacity (N. T.)	
Ohio (*Continued*)					
Hamilton					
Armco Steel Corporation	.....	.....	110	480,000	480,000
Lorain					
National Tube Company	.....	.....	385	1,850,000	1,850,000
Massillon					
Republic Steel Corporation	.....	.....	49	295,000	295,000
Portsmouth					
Portsmouth Steel Corporation	.....	.....	108	450,000	450,000
Toledo					
Interlake Iron Corporation	.....	.....	94	372,600	372,600
Warren					
Republic Steel Corporation	.....	.....	108	560,000	560,000
Youngstown					
Republic Steel Corporation	.....	.....	212	930,000	930,000
Youngstown Sheet and Tube Co.	.....	.....	84	372,000	372,000
TOTAL	.....	.....	2,077	9,463,600	9,463,600
Pennsylvania					
Aliquippa					
Jones & Laughlin Steel Corporation	240	252,000	248	1,302,000	1,554,000
Bethlehem					
Bethlehem Steel Company	.....	.....	416	1,680,000	1,680,000
Clairton					
Carnegie-Illinois Steel Corporation	.....	.....	1,482	7,457,000	7,457,000
Erie					
Interlake Iron Corporation	.....	.....	72	275,600	275,600
Isabella					
Weirton Coal Company	136	120,000	.....	.....	120,000
Johnstown					
Bethlehem Steel Company	.....	.....	362	1,884,000	1,884,000
Midland					
Crucible Steel Company of America	.....	.....	121	522,000	522,000
Monessen					
Pittsburgh Steel Company	.....	.....	74	500,000	500,000
Mount Pleasant					
Carpentertown Coal & Coke Co.	408	300,000	.....	.....	300,000
Neville Island					
Pittsburgh Coke & Chemical Co.	.....	.....	70	500,000	500,000
Pittsburgh					
Jones & Laughlin Steel Corporation	.....	.....	360	1,596,000	1,596,000
Steelton					
Bethlehem Steel Company	.....	.....	130	648,000	648,000
Swedeland					
Alan Wood Steel Company	.....	.....	151	600,000	600,000
Various					
Frick Coke Company, H. C.	2,912	2,073,750	.....	.....	2,073,750
TOTAL	3,696	2,745,750	3,486	16,964,600	19,710,350
Tennessee					
Chattanooga					
Tennessee Products & Chemical Corp.	.....	.....	44	240,000	240,000
Texas					
Daingerfield					
Lone Star Steel Company	.....	.....	78	375,000	375,000
Houston					
Sheffield Steel Corporation	.....	.....	47	252,000	252,000
TOTAL	.....	.....	125	627,000	627,000
Utah					
Dragerton					
Kaiser & Frazer Parts Corporation	* 500	* 300,000	.....	.....	
Geneva					
Geneva Steel Company	.....	.....	252	971,100	971,100
Ironton					
Geneva Steel Company	.....	.....	56	209,500	209,500
TOTAL	* 500	* 300,000	308	1,180,600	1,180,600
West Virginia					
East Steubenville					
Wheeling Steel Corporation	.....	.....	145	700,000	700,000
Morgantown					
Sharon Steel Corporation	.....	.....	74	400,000	400,000
Weirton					
Weirton Steel Company	.....	.....	237	1,400,000	1,400,000
TOTAL	.....	.....	456	2,500,000	2,500,000
GRAND TOTAL	3,790	2,806,350	11,982	59,699,490	62,505,840

* Last operated in 1943, not included in total.

Steel Company Names and Addresses

(*Continued from Page 42*)

Highland Iron & Steel, Inc.
Terre Haute, Ind.
Hind Steel Company, Inc.
2146 Stanley Terrace
Union, N. J.
Igoe Brothers, Inc.
Avenue A & Poinier St.
Newark 5, N. J.
Inland Steel Co.
38 S. Dearborn St.
Chicago 3, Ill.
Interlake Iron Corp.
1900 Union Commerce Bldg.
Cleveland 14, O.
International Detroit Corp.
1100 W. Beardsley Ave.
Elkhart, Ind.
International Harvester Co.
180 N. Michigan Ave.
Chicago 1, Ill.
Isaacson Iron Works
P. O. Box 3028
Seattle 14, Wash.
Ivins Steel Tube Works, Ellwood
Oak Lane Station
Philadelphia, Pa.
Jackson Iron & Steel Co.
Jackson, O.
Jackson Tube Company, Inc.
Piqua, O.
Janson Steel & Iron Co.
Columbia, Pa.
Jersey Shore Steel Co.
Jersey Shore, Pa.
Jessop Steel Co., Washington, Pa.
Johnson Steel & Wire Co.
53 Wiser Ave.
Worcester 1, Mass.
Jones & Laughlin Steel Corp.
Third Ave. & Ross St.
Pittsburgh 30, Pa.
Joslyn Mfg. & Supply Co.
20 North Wacker Drive
Chicago 2, Ill.
Judson Steel Corp.
4200 Eastshore Highway
Emeryville, Calif.
Kaiser Co., Inc.
Latham Square Bldg.
Oakland, Calif.
Kaiser & Frazer Parts Corp.
Provo, Utah
Keystone Drawn Steel Co.
Spring City, Pa.
Keystone Steel & Wire Co.
Peoria, Ill.
Kidd Drawn Steel Co.
Aliquippa, Pa.
Knoxville Iron Co.
Knoxville 2, Tenn.
Laclede Steel Co.
1317 Arcade Bldg.
St. Louis 1, Mo.
La Salle Steel Co.
919 N. Michigan Ave.
Chicago 80, Ill.
Latrobe Electric Steel Co.
2626 Ligonier St., Latrobe, Pa.
Lavino & Co., E. J.
1528 Walnut St.
Philadelphia 2, Pa.
Lockhart Iron & Steel Co.
P. O. Box 1165
Pittsburgh, Pa.
Lone Star Steel Co., Dallas, Texas
Lukens Steel Co., Coatesville, Pa.
McLouth Steel Corp.
300 S. Livernois, Detroit 17, Mich.
Macwhyte Co.
2900—14th Ave. Kenosha, Wis.
Madison Wire Company, Inc.
Indian Church Road
Buffalo, N. Y.
Mahoning Valley Steel Co.
McKees Lane, Niles, O.
Manitoba Rolling Mill Co., Ltd.
875 Logan Ave.
Winnipeg, Manitoba, Canada
Mark & Co., Clayton
1900 Dempster St., Evanston, Ill.
Medart Co.
100 Potomac St., St. Louis, 18, Mo.
Mercer Tube & Mfg. Co.
200 Clark St., Sharon, Pa.
Mesta Machine Co.
P. O. Box 1466, Pittsburgh 30, Pa.
Michigan Seamless Tube Co.
South Lyon, Mich.
Mid-States Steel & Wire Co.
Crawfordsville, Ind.
Midvale Co.
Nicetown, Philadelphia 40, Pa.
Missouri-Illinois Furnaces, Inc.
Granite City, Ill.
Missouri Rolling Mill Corp.
6800 Manchester Ave.
St. Louis 10, Mo.
Moltrup Steel Products Co.
Beaver Falls, Pa.
Monarch Steel Co., Inc.
McCarty & Sand St.
Indianapolis, Ind.
National Forge & Ordnance Co.
Irvine, Warren Co., Pa.
National-Standard Co.
Niles, Mich.
National Steel Corp.
2800 Grant Bldg.
Pittsburgh 19, Pa.
National Supply Co.
1400 Grant Bldg.
Pittsburgh 30, Pa.
National Tube Co.
Frick Bldg., Pittsburgh 30, Pa.
Naylor Pipe Co.
1230 E. 92nd St.
Chicago 19, Ill.
Nelsen Steel & Wire Co.
9400 Belmont Ave.
Franklin Park, Ill.
New England High Carbon Wire Co., 50 Howe Ave.
Millbury, Mass.
New Jersey Zinc Co.
160 Front St., New York 7, N. Y.
Newman-Crosby Steel Corp.
Pawtucket, R. I.
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.
Nichols Wire & Aluminum Co.
Davenport, Iowa
Nikoh Tube Co.
5001 S. Kedzie Ave.
Chicago 32, Ill.
Niles Rolling Mill Co., Niles, O.
Northern Steel, Inc.
44 School St., Boston, Mass.
Northwest Steel Rolling Mills, Inc.
4315 Ninth Ave., N. W.
Seattle 7, Wash.
Northwestern Steel & Wire Co.
Sterling, Ill.
Ohio Seamless Tube Co.
132-140 West Main St.
Shelby, O.
Oregon Steel Mills
5250 N. W. Front Ave.
Portland 10, Ore.
Pacific States Steel Corp.
Niles, Calif.
Pacific Tube Co.
5710 Smithway St.
Los Angeles 22, Calif.
Parkersburg Steel Co.
Parkersburg, W. Va.
Phoenix-Apollo Steel Co.
121 Bridge St.
Phoenixville, Pa.
Phoenix Manufacturing Co.
Industry Ave., Joliet, Ill.
Pilgrim Drawn Steel Corp.
2208 Fisher Bldg., Detroit 2, Mich.
Pine Iron Works Co.
Pine Forge, Pa.
Pittsburgh Coke & Chemical Co.
1905 Grant Bldg.
Pittsburgh 19, Pa.
Pittsburgh Steel Co.
1600 Grant Bldg.
Pittsburgh 19, Pa.
Pittsburgh Tool Steel Wire Co.
Monaca, Pa.
Pittsburgh Tube Co.
323 Fourth Ave.
Pittsburgh 22, Pa.
Plymouth Tube Co.
1435 Franklin St., Detroit 7, Mich.
Pollak Steel Co.
820 Temple Bar Bldg.
Cincinnati 2, O.
Poor & Co.
50 Church St., New York 7, N. Y.
Portsmouth Steel Corp.
Portsmouth, O.
Precision Drawn Steel Co.
3600 River Road, Camden, N. J.
Prentiss & Company, Geo. W.
439 Dwight St.
Holyoke, Mass.
Quality Steels (Canada) Ltd.
32 Front W.
Toronto, Ontario, Canada
Reconstruction Finance Corp.
400 Transit Tower
San Antonio 5, Texas
Reeves Steel & Manufacturing Co.
Dover, O.
Republic Steel Corp.
Republic Bldg., Cleveland 1, O.
Rhode Island Steel Corp.
Pawtucket, R. I.
Richmond Rolling Mills, Inc.
Belle Isle
Richmond, Va.
Roebling's Sons Co., John A.
640 South Broad St.
Trenton 2, N. J.
Rome Strip Steel Co., Inc.
530 Henry St., Rome, N. Y.

Steel Ingots

Expansion and Rehabilitation program has brought capacity almost back to war-time peak level and well ahead of prewar

UNDER wartime pressure, steel ingot capacity in the United States was expanded to 95,505,280 net tons as of Jan. 1, 1945, a record high. At the end of the war, steel companies found it uneconomical to operate a number of obsolete units, despite the pressure from consumers for finished products and somewhat higher selling prices. As a result capacity dropped over four million tons in the next two years.

However, the steel industry had a definite program of expansion and rehabilitation of facilities on the boards so that today steelmaking capacity

Rotary Electric Steel Co.
8 Mile and Mound Roads
Detroit 20, Mich.
Seneca Wire & Mfg. Co.
Fostoria, O.
Service Steel Co.
1435 Franklin St.
Detroit 7, Mich.
Sharon Steel Corp., Sharon, Pa.
Sharon Tube Co.
249 N. Water Ave.
Sharon, Pa.
Sheffield Steel Corp.
Sheffield Station
Kansas City, Mo.
Shenango Furnace Co.
812 Oliver Bldg.
Pittsburgh 22, Pa.
Simmons Co.
230 Park Ave.
New York 17, N. Y.
Simonds Saw & Steel Co.
470 Main St., Fitchburg, Mass.
Sloss-Sheffield Steel & Iron Co.
Birmingham, Ala.
Smith Corporation, A. O.
3533 N. 27th St.
Milwaukee 1, Wis.
South Chester Tube Co.
Front & Thurlow Sts.
Chester, Pa.
Southern Pipe & Casing Co.
P. O. Box C, Azusa, Calif.
Spencer Wire Co.
68 Pleasant St.
W. Brookfield, Mass.
Standard Tube Co.
14534 Woodward Ave.
Detroit, Mich.
Stanley Works, New Britain, Conn.
Steel Co. of Canada, Ltd.
Hamilton, Ontario, Canada
Superior Drawn Steel Co.
Monaca, Pa.
Superior Steel Corp.
Grant Bldg., Pittsburgh 19, Pa.
Sweet's Steel Co., Williamsport, Pa.
Taylor Forge & Pipe Works
4735 W. 14th St., Cicero, Ill.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg.
Birmingham 2, Ala.
Tennessee Products & Chemical Corp., 412 American National Bank Bldg., Nashville 3, Tenn.
Texas Steel Co.
3901 Hemphill St.
Fort Worth, Texas
Thomas Steel Co., Warren, O.
Thompson Wire Co.
41 Mildred Ave.
Mattapan, Mass.
Timken Roller Bearing Co.
1835 Dueber Ave., S. W.
Canton 6, O.
Toledo Steel Tube Co.
2115 Smead Ave., Toledo 6, O.
Tonawanda Iron Corp.
North Tonawanda, N. Y.
Tredegar Co., Richmond, Va.
Trent Tube Manufacturing Co.
East Troy, Wisc.
Tube Reducing Corp.
520 Main Ave.
Wallington, N. J.
Ulster Iron Works
21 No. Sussex St., Dover, N. J.
Union Electric Steel Corp.
2314 Oliver Bldg.
Pittsburgh 22, Pa.
Union Wire Rope Corp.
21st & Manchester Ave.
Kansas City 3, Mo.
United States Steel Corp.
71 Broadway, New York 6, N. Y.
Universal-Cyclops Steel Corp.
Bridgeville, Pa.
Valencia Iron & Chemical Corp.
Rusk, Texas
Vanadium-Alloys Steel Co.
Latrobe, Pa.
Vancouver Rolling Mills, Ltd.
490 SE Marine
Vancouver, Canada
Vulcan Crucible Steel Co.
West Aliquippa, Pa.
Wallace Barnes Co., Bristol, Conn.
Wallingford Steel Co.
Wallingford, Conn.
Washburn Wire Co.
Phillipsdale 16, R. I.
Washington Steel Corp.
9 E. Beau St., Washington, Pa.
Webb Wire Works
17 Liberty St.
New Brunswick, N. J.
Weirton Coal Co., Weirton, W. Va.
Weirton Steel Co., Weirton, W. Va.
West Virginia Steel & Mfg. Co.
Foot of 17st St.
Huntington, W. Va.
Western Automatic Machine Screw Co., Elyria, O.
Wheatland Tube Co.
Real Estate Trust Bldg.
Philadelphia 7, Pa.
Wheeling Steel Corp.
Wheeling, W. Va.
Wickwire Brothers, Inc.
Cortland, N. Y.
Wilson Steel & Wire Co.
4840 So. Western Ave.
Chicago 9, Ill.
Woodward Iron Co.
Woodward, Ala.
Worcester Pressed Steel Co.
100 Barber Ave.
Worcester 6, Mass.
Worth Steel Co., Claymont, Del.
Wright Steel & Wire Co., G.
243 Stafford St.
Worcester 3, Mass.
Wyckoff Steel Co.
First National Bank Bldg.
Pittsburgh 30, Pa.
Youngstown Sheet & Tube Co.
Stambaugh Bldg.
Youngstown 1, O.

again is approaching the wartime peak. As the accompanying detailed statistics taken from the American Iron & Steel Institute's new directory show, capacity on Jan. 1, 1948 was 94,233,460 tons.

In addition to constructing new furnaces and enlarging existing ones, steelmakers are using cupolas and Bessemer converters more extensively to supply hot metal for their open hearths. An examination of the statistics shows that ten out 39 converters are used for melting purposes. Even in the specialty steel field, pairs of electric furnaces are being used, one for the melting and the other for refining.

Taking Jan. 1, 1938 as a prewar base, total steel ingot capacity has shown an increase of about 17 per cent in the past ten years, while that for open hearth steel, largely carbon grades used in making sheets, bars, structurals and the like, has risen slightly more than 18 per cent.

The most phenomenal increase has been in electric furnace capacity which, of course, was required

COMPARATIVE STEEL INGOT CAPACITIES BY COMPANIES
(Net Tons)

	Jan. 1, 1948	Jan. 1, 1945	Jan. 1, 1938
United States Steel Corp.	31,226,200	32,307,000	28,884,000
Bethlehem Steel Co.	13,800,000	12,900,000	11,247,040
Republic Steel Corp.	8,600,000	9,791,000	7,280,000
Jones & Laughlin Steel Corp..	4,741,500	5,042,400	4,111,744
National Steel Corp.	4,050,000	3,900,000	3,808,000
Youngstown Sheet & Tube Co.	4,002,000	4,002,000	3,494,000
Inland Steel Co.	3,400,000	3,400,000	3,091,200
Armco Steel Corp.	3,367,000	3,268,000	2,915,920
Sharon Steel Corp.	1,572,000	636,000	560,000
Colorado Fuel & Iron Corp. ..	1,452,000	1,272,000	994,560
Wheeling Steel Corp.	1,409,000	1,960,000	1,960,000
Crucible Steel Co. of America.	1,253,650	1,507,680	955,808
Ford Motor Co.	1,115,100	967,420	1,042,944
Pittsburgh Steel Co.	1,072,000	1,072,000	907,200

TREND IN STEEL INGOT CAPACITY—(Net Tons)

As of Jan. 1	Open Hearth	Bessemer	Crucible	Electric	Total
1948	83,610,690	5,226,000	20	5,396,770	94,233,460
1947	81,010,990	5,154,000	20	5,076,240	91,241,250
1946	81,236,250	5,154,000	20	5,500,290	91,890,560
1945	84,171,590	5,874,000	3800	5,455,890	95,505,280
1944	82,223,610	6,074,000	3800	5,350,880	93,652,290
1943	79,180,880	6,553,000	3800	4,554,980	90,292,660
1942	78,107,260	6,721,400	3800	3,737,510	88,569,970
1941	74,565,510	6,996,520	3942	2,586,320	84,152,292
1940	73,721,592	6,009,920	5354	1,882,630	81,619,496
1939	72,959,638	7,138,880	5354	1,725,086	81,828,958
1938	71,472,370	7,212,800	9610	1,490,858	80,185,638
1937	69,725,736	7,084,000	11,850	1,326,788	78,148,374
1936	68,946,829	8,058,400	11,850	1,147,221	78,164,300
1935	68,544,310	8,842,400	11,850	1,053,370	78,451,930

STEEL INGOT CAPACITY BY TYPE AND COMPANY

	Open Hearth No.	Open Hearth Annual capacity (N. T.)	Bessemer No.	Bessemer Annual capacity (N. T.)	Electric and Crucible No.	Electric and Crucible Annual capacity (N. T.)	Total annual capacity (N. T.)
Kinds:							
Open hearth—basic	908	82,337,840	....	.....	....	.....	82,337,840
Open hearth—acid	46	1,272,850	....	.....	....	.....	1,272,850
Bessemer	....	.....	(f) 39	5,226,000	....	.....	5,226,000
Electric	....	.....	....	.....	222	5,396,750	5,396,750
Crucible	....	.....	....	.....	1	20	20
TOTAL	954	83,610,690	(f) 39	5,226,000	223	5,396,770	94,233,460
Steel for castings included above	....	243,410	....	.....	....	67,710	311,120
Companies:							
Alan Wood Steel Co.	7	550,000	....	.....	....	.....	550,000
Allegheny Ludlum Steel Corporation	7	260,160	....	.....	24	236,200	496,360
American Locomotive Co.	6	181,000	....	.....	....	.....	181,000
Armco Steel Corporation	23	2,172,000	....	.....	10	155,000	2,327,000
Sheffield Steel Corp.	12	1,040,000	....	.....	....	.....	1,040,000
TOTAL	35	3,212,000	....	.....	10	155,000	3,367,000
Atlantic Steel Company	3	165,000	....	.....	....	.....	165,000
Babcock & Wilcox Tube Company	....	.....	....	.....	2	50,400	50,400
Baldwin Locomotive Works	5	149,280	....	.....	(a) 1	20	149,300
Barium Steel & Forge, Inc.	2	50,000	....	.....	....	.....	50,000
Bethlehem Steel Corp:							
Bethlehem Steel Co.	122	12,412,000	6	572,000	9	158,000	13,142,000
Bethlehem Pacific Coast Steel Corp.	13	562,000	....	.....	1	96,000	658,000
TOTAL	135	12,974,000	6	572,000	10	254,000	13,800,000
Borg-Warner Corporation	....	.....	....	.....	3	24,000	24,000
Braeburn Alloy Steel Corp.	....	.....	....	.....	2	20,730	20,730
Byers Company, A. M.	2	75,000	....	.....	2	75,000	150,000
Carpenter Steel Company	....	.....	....	.....	6	74,880	74,880
(b) Case Company, J. I.	2	54,000	....	.....	2	20,400	74,400
Central Iron & Steel Co.	5	288,000	....	.....	....	.....	288,000
Colorado Fuel and Iron Corporation	20	1,452,000	....	.....	....	.....	1,452,000
Columbia Tool Steel Co.	....	.....	....	.....	2	6,600	6,600
Connors Steel Co.	....	.....	....	.....	2	60,000	60,000
Continental Steel Corp.	5	364,000	....	.....	....	.....	364,000
Copperweld Steel Co.	....	.....	....	.....	9	450,000	450,000
Crucible Steel Company of America	15	936,060	....	.....	21	317,590	1,253,650
Disston & Sons, Inc., Henry	....	.....	....	.....	2	25,000	25,000
Edgewater Steel Co.	4	140,170	....	.....	....	.....	140,170
Empire Steel Company	6	369,730	....	.....	....	.....	369,730
Erie Forge Company	3	80,000	....	.....	....	.....	80,000
Erie Forge & Steel Co.	2	128,950	....	.....	....	.....	128,950
Firth Sterling Steel and Carbide Corp.	....	.....	....	.....	3	20,040	20,040
Follansbee Steel Corp.	4	136,080	....	.....	....	.....	136,080
Ford Motor Company	10	982,800	....	.....	4	132,300	1,115,100
Granite City Steel Co.	13	620,000	....	.....	....	.....	620,000
Harrisburg Steel Corp.	3	100,750	....	.....	....	.....	100,750
Heppenstall Company	2	39,880	....	.....	2	6,700	46,580
Inland Steel Company	36	3,400,000	....	.....	....	.....	3,400,000
International Detrola Corp.	7	413,100	....	.....	....	.....	413,100
International Harvester Company	11	900,000	....	.....	....	.....	900,000
Isaacson Iron Works	....	.....	....	.....	2	104,400	104,400
Jessop Steel Company	....	.....	....	.....	8	50,000	50,000
Jones & Laughlin Steel Corporation	29	3,822,000	5	918,000	1	1,500	4,741,500
Joslyn Mfg. & Supply Co.	....	.....	....	.....	3	37,500	37,500
Judson Steel Corporation	3	76,500	....	.....	....	.....	76,500
Kaiser Company, Inc.	6	840,000	....	.....	1	30,000	870,000
Keystone Steel & Wire Co.	3	302,400	....	.....	....	.....	302,400
Knoxville Iron Company	....	.....	....	.....	2	38,000	38,000
Laclede Steel Company	4	326,020	....	.....	....	.....	326,020
Latrobe Electric Steel Co.	....	.....	....	.....	4	12,000	12,000
Lukens Steel Company	12	624,000	....	.....	....	.....	624,000
Mesta Machine Company	4	85,000	....	.....	1	20,000	105,000
Midvale Company	8	430,830	....	.....	9	92,940	523,770
National Forge & Ordnance Company	....	.....	....	.....	3	25,000	25,000
National Steel Corp:							
Great Lakes Steel Corp.	16	2,100,000	(c) 2	.....	....	.....	2,100,000
Weirton Steel Co.	12	1,950,000	(c) 2	.....	....	.....	1,950,000
TOTAL	28	4,050,000	(c) 4	.....	....	.....	4,050,000
National Supply Co.	....	.....	....	.....	3	41,400	41,400
(d) Newport News Shipbuilding & Dry Dock Co.	....	.....	....	.....	2	7,500	7,500
Northwest Steel Rolling Mills, Inc.	....	.....	....	.....	2	32,400	32,400
Northwestern Steel & Wire Co.	....	.....	....	.....	3	321,000	321,000
Oregon Steel Mills	....	.....	....	.....	2	66,100	66,100
Pacific States Steel Corp.	....	.....	....	.....	4	94,500	94,500
Phoenix-Apollo Steel Company	5	231,400	....	.....	....	.....	231,400
Pittsburgh Steel Co.	12	1,072,000	....	.....	....	.....	1,072,000
Portsmouth Steel Corp.	10	720,000	....	.....	....	.....	720,000
Reconstruction Finance Corp.	....	.....	....	.....	7	480,000	480,000
Republic Steel Corp.	78	7,140,000	2	700,000	16	760,000	8,600,000
Roeblings Sons Co., J. A.	9	253,000	....	.....	....	.....	253,000
Rotary Electric Steel Co.	....	.....	....	.....	3	255,000	255,000
Sharon Steel Corp.	19	1,500,000	....	.....	2	72,000	1,572,000
Simonds Saw & Steel Co.	....	.....	....	.....	3	21,600	21,600
Stanley Works	3	188,280	....	.....	....	.....	188,280
Texas Steel Company	....	.....	....	.....	2	22,320	22,320
Timken Roller Bearing Company	3	201,600	....	.....	6	345,600	547,200
Union Electric Steel Corp.	....	.....	....	.....	2	21,000	21,000
United States Steel Corp.:							
American Steel & Wire Company	24	1,782,000	....	.....	....	.....	1,782,000
Carnegie-Illinois Steel Corporation	231	19,989,700	(e) 8	1,284,000	13	418,300	21,692,000
Columbia Steel Co.	11	555,600	....	.....	2	15,200	570,800
Geneva Steel Co.	9	1,283,400	....	.....	....	.....	1,283,400
National Tube Co.	15	2,202,000	5	846,000	....	.....	3,048,000
Tennessee Coal, Iron & Railroad Company	21	2,850,000	(e) 3	.....	....	.....	2,850,000
TOTAL	311	28,662,700	16	2,130,000	15	433,500	31,226,200
Universal-Cyclops Steel Corporation	....	.....	....	.....	4	54,120	54,120
Vanadium-Alloys Steel Co.	....	.....	....	.....	3	11,910	11,910
Colonial Steel Co.	....	.....	....	.....	1	7,020	7,020
TOTAL	....	.....	....	.....	4	18,930	18,930
Vulcan Crucible Steel Co.	....	.....	....	.....	2	9,600	9,600
Washburn Wire Co.	3	60,000	....	.....	....	.....	60,000
Wheeling Steel Corp.	11	1,073,000	2	336,000	....	.....	1,409,000
Wickwire Brothers, Inc.	3	38,000	....	.....	....	.....	38,000
Worth Steel Company	7	460,000	....	.....	....	.....	460,000
Youngstown Sheet and Tube Company	33	3,432,000	4	570,000	....	.....	4,002,000
GRAND TOTAL	954	83,610,690	(f) 39	5,226,000	(g)223	5,396,770	94,233,460

to provide alloy steels for the aircraft and other programs during the war. Existing and projected capacity late in 1943 was placed at 6,248,470 tons and as of Jan. 1, 1946, the Institute reported available furnaces could produce 5,500,290 tons annually. A number of furnaces were removed from the list in 1946, bringing the Jan. 1, 1947 figure down to 5,076,240 but at the beginning of this year the total was back up to 5,396,770 tons. A considerable number of these electric furnaces are making carbon steel ingots for conversion into steel, strip, etc., not alloys steels, due to excessive demand for flat-rolled products.

Capacity for the production of Bessemer steels has declined almost 30 per cent in the past ten years, due in part to use of converters for supplying hot metal for open hearths. There is no immediate prospect, however, that Bessemer steels will fade out of the picture and, in fact, the development of the side-blow converter is focusing new attention on this steelmaking method. The crucible process now is practically extinct, Baldwin Locomotive having the lone remaining furnace at Burnham, Pa.

The table on comparative steel capacities shows the changes which have taken place during and since the war among companies with capacity of 1,000,000 tons or more. The larger companies have grown in size slightly more than the industry as a whole but this statement also applies to a number of the smaller producers. Sharon, for example, has practically tripled its capacity through the purchase of the Farrell, Pa. works from U. S. Steel.

STEEL INGOT CAPACITY BY PLANT LOCATION AND OPERATING COMPANY

	Open Hearth		Bessemer		Electric and Crucible		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Alabama							
Anniston							
(b) Case Co., J. I.	2	54,000	....	.....	2	20,400	74,400
Birmingham							
Connors Steel Co.	....	.....	....	.....	2	60,000	60,000
Ensley							
Tennessee Coal, Iron & Railroad Company	9	1,568,000	(c) 3				1,568,000
Fairfield							
Tennessee Coal, Iron & Railroad Company	12	1,282,000	....	.....	....	.....	1,282,000
Gadsden							
Republic Steel Corp.	8	650,000	....	.....	....	.....	650,000
TOTAL	31	3,554,000	3	.....	4	80,400	3,634,400
California							
Emeryville							
Judson Steel Corp.	3	76,500	....	.....	....	.....	76,500
Fontana							
Kaiser Company, Inc.	6	840,000	....	.....	1	30,000	870,000
Los Angeles							
Bethlehem Pacific Coast Steel Corp.	3	117,000	....	.....	1	96,000	213,000
Niles							
Pacific States Steel Corp.	....	.....	....	.....	4	94,500	94,500
Pittsburgh							
Columbia Steel Co.	7	353,900	....	.....	1	8,700	362,600
South San Francisco							
Bethlehem Pacific Coast Steel Corp.	5	235,000	....	.....	....	.....	235,000
Torrance							
Columbia Steel Co.	4	201,700	....	.....	1	6,500	208,200
National Supply Co.	....	.....	....	.....	3	41,400	41,400
TOTAL	28	1,824,100	....	.....	11	277,100	2,101,200
Colorado							
Pueblo							
Colorado Fuel and Iron Corp.	16	1,272,000	....	.....	....	.....	1,272,000
Connecticut							
Bridgeport							
Stanley Works	3	188,280	....	.....	....	.....	188,280
Delaware							
Claymont							
Worth Steel Co.	7	460,000	....	.....	....	.....	460,000
Georgia							
Atlanta							
Atlantic Steel Co.	3	165,000	....	.....	....	.....	165,000
Illinois							
Alton							
Laclede Steel Co.	4	326,020	....	.....	....	.....	326,020
Chicago Heights							
American Locomotive Co.	3	78,000	....	.....	....	.....	78,000
Columbia Tool Steel Co.	....	.....	....	.....	2	6,600	6,600
Granite City							
Granite City Steel Co.	13	620,000	....	.....	....	.....	620,000
Peoria							
Keystone Steel & Wire Co.	3	302,400	....	.....	....	.....	302,400
South Chicago							
Carnegie-Illinois Steel Corporation	31	3,755,000	3	500,000	8	270,000	4,525,000
International Harvester Company	11	900,000	....	.....	....	.....	900,000
Republic Steel Corp.	12	975,000	....	.....	3	250,000	1,225,000
Sterling							
Northwestern Steel & Wire Company	....	.....	....	.....	3	321,000	321,000
TOTAL	77	6,956,420	3	500,000	16	847,600	8,304,020
Indiana							
East Chicago							
Reconstruction Finance Corp.	....	.....	....	.....	2	120,000	120,000
Youngstown Sheet and Tube Company	9	1,116,000	2	330,000	....	.....	1,446,000
Fort Wayne							
Joslyn Mfg. & Supply Company	....	.....	....	.....	3	37,500	37,500
Gary							
Carnegie-Illinois Steel Corporation	55	5,718,800	(c) 3	.....	....	.....	5,718,800
Indiana Harbor							
Inland Steel Company	36	3,400,000	....	.....	....	.....	3,400,000
Kokomo							
Continental Steel Corp.	5	364,000	....	.....	....	.....	364,000
New Castle							
Borg-Warner Corp.	....	.....	....	.....	3	24,000	24,000
TOTAL	105	10,598,800	5	330,000	8	181,500	11,110,300
Kentucky							
Ashland							
Armco Steel Corporation	8	828,000	....	.....	....	.....	828,000
Newport							
International Detrola Corp.	7	413,100	....	.....	....	.....	413,100
TOTAL	15	1,241,100	....	.....	....	.....	1,241,100
Maryland							
Baltimore							
Armco Steel Corporation	....	.....	....	.....	6	95,000	95,000
Sparrows Point							
Bethlehem Steel Co.	28	4,339,000	3	312,000	....	.....	4,651,000
TOTAL	28	4,339,000	3	312,000	6	95,000	4,746,000
Massachusetts							
Worcester							
American Steel & Wire Company	4	250,000	....	.....	....	.....	250,000
Michigan							
Dearborn							
Ford Motor Company	10	982,800	....	.....	4	132,300	1,115,100
Detroit							
Rotary Electric Steel Company	....	.....	....	.....	3	255,000	255,000
Ecorse							
Great Lakes Steel Corp.	16	2,100,000	(c) 2	.....	....	.....	2,100,000
Ferndale							
Allegheny Ludlum Steel Corporation	....	.....	....	.....	5	3,000	3,000
TOTAL	26	3,082,800	(c) 2	.....	12	390,300	3,473,100
Minnesota							
Duluth							
American Steel & Wire Company	7	690,000	....	.....	....	.....	690,000
Missouri							
Kansas City							
Sheffield Steel Corp.	5	426,000	....	.....	....	.....	426,000
New Jersey							
Harrison							
Crucible Steel Company of America	....	.....	....	.....	5	4,800	4,800
Roebling							
Roebling's Sons Co., J. A.	9	253,000	....	.....	....	.....	253,000
TOTAL	9	253,000	....	.....	5	4,800	257,800
New York							
Buffalo							
Republic Steel Corp.	9	830,000	....	.....	....	.....	830,000
Cortland							
Wickwire Brothers, Inc.	3	38,000	....	.....	....	.....	38,000
Dunkirk							
Allegheny Ludlum Steel Corporation	....	.....	....	.....	3	33,000	33,000

Steel (Ingots and Steel for Castings) (*Continued*)

	Open Hearth		Bessemer		Electric and Crucible		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Lackawanna							
Bethlehem Steel Co.	30	3,120,000	....	.....	....	.....	3,120,000
Lockport							
Simonds Saw & Steel Co.	....	.....	....	.....	3	21,600	21,600
Syracuse							
Crucible Steel Company of America	....	.....	....	.....	8	67,800	67,800
Tonawanda							
Allegheny Ludlum Steel Corporation	....	.....	....	.....	2	4,500	4,500
Colorado Fuel & Iron Corp.	4	180,000	....	.....	....	.....	180,000
Watervliet							
Allegheny Ludlum Steel Corporation	....	.....	....	.....	3	25,000	25,000
Total	46	4,168,000	....	.....	19	151,900	4,319,900
Ohio							
Campbell							
Youngstown Sheet and Tube Company	12	1,212,000	2	240,000	....	.....	1,452,000
Canton							
Barium Steel & Forge, Inc.	2	50,000	....	.....	....	.....	50,000
Reconstruction Finance Corp.	....	.....	....	.....	5	360,000	360,000
Republic Steel Corp.	3	265,000	....	.....	13	510,000	775,000
Timken Roller Bearing Co.	3	201,600	....	.....	6	345,600	547,200
Cleveland							
Jones & Laughlin Steel Corp.	8	840,000	....	.....	....	.....	840,000
Republic Steel Corp.	14	1,500,000	....	.....	....	.....	1,500,000
Lorain							
National Tube Co.	12	1,326,000	2	558,000	....	.....	1,884,000
Lowellville							
Sharon Steel Corp.	5	500,000	....	.....	2	72,000	572,000
Mansfield							
Empire Steel Co.	6	369,730	....	.....	....	.....	369,730
Massillon							
Republic Steel Corp.	9	610,000	....	.....	....	.....	610,000
Middletown							
Armco Steel Corp.	8	912,000	....	.....	4	60,000	972,000
Portsmouth							
Portsmouth Steel Corp.	10	720,000	....	.....	....	.....	720,000
Steubenville							
Wheeling Steel Corp.	11	1,073,000	....	.....	....	.....	1,073,000
Toronto							
Follansbee Steel Corp.	4	136,080	....	.....	....	.....	136,080
Warren							
Copperweld Steel Co.	....	.....	....	.....	9	450,000	450,000
Republic Steel Corp.	8	860,000	....	.....	....	.....	860,000
Youngstown							
Carnegie-Illinois Steel Corp.	15	1,560,000	2	784,000	....	.....	2,344,000
Republic Steel Corp.	15	1,450,000	2	700,000	....	.....	2,150,000
Youngstown Sheet and Tube Co.	12	1,104,000	....	.....	....	.....	1,104,000
Total	157	14,689,410	8	2,282,000	39	1,797,600	18,769,010
Oklahoma							
Sand Springs							
Sheffield Steel Corp.	1	54,000	....	.....	....	.....	54,000
Oregon							
Portland							
Oregon Steel Mills	....	.....	....	.....	2	66,100	66,100
Pennsylvania							
Aliquippa							
Jones & Laughlin Steel Corp.	5	1,182,000	3	582,000	....	.....	1,764,000
Vulcan Crucible Steel Co.	....	.....	....	.....	2	9,600	9,600
Beaver Falls							
Babcock & Wilcox Tube Co.	....	.....	....	.....	2	50,400	50,400
Bethlehem							
Bethlehem Steel Co.	32	2,427,000	....	.....	8	158,000	2,585,000
Brackenridge							
Allegheny Ludlum Steel Corp.	7	260,160	....	.....	11	170,700	430,860
Braddock							
Carnegie-Illinois Steel Corp.	16	1,753,000	....	.....	....	.....	1,753,000
Braeburn							
Braeburn Alloy Steel Corp.	....	.....	....	.....	2	20,730	20,730
Bridgeville							
Universal-Cyclops Steel Corp.	....	.....	....	.....	4	54,120	54,120
Burnham							
Baldwin Locomotive Works	5	149,280	....	.....	(a) 1	20	149,300
Butler							
Armco Steel Corporation	7	432,000	....	.....	....	.....	432,000
Carnegie							
Union Electric Steel Corporation	....	.....	....	.....	2	21,000	21,000
Clairton							
Carnegie-Illinois Steel Corporation	12	805,000	....	.....	....	.....	805,000
Coatesville							
Lukens Steel Company	12	624,000	....	.....	....	.....	624,000
Donora							
American Steel & Wire Company	13	842,000	....	.....	....	.....	842,000
Duquesne							
Carnegie-Illinois Steel Corporation	27	1,600,000	....	.....	4	142,800	1,742,800
Erie							
Erie Forge Company	3	80,000	....	.....	....	.....	80,000
Erie Forge & Steel Co.	2	128,950	....	.....	....	.....	128,950
Farrell							
Sharon Steel Corp.	14	1,000,000	....	.....	....	.....	1,000,000

Steel (Ingots and Steel for Castings) (*Continued*)

	Open Hearth		Bessemer		Electric and Crucible		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Harmony Township							
Byers Company, A. M.	2	75,000	....	.....	2	75,000	150,000
Harrisburg							
Central Iron & Steel Co.	5	288,000	....	.....	....	.....	288,000
Harrisburg Steel Co.	3	100,750	....	.....	....	.....	100,750
Irvine							
National Forge & Ordnance Company	....	.....	....	.....	3	25,000	25,000
Ivy Rock							
Alan Wood Steel Co.	7	550,000	....	.....	....	.....	550,000
Johnstown							
Bethlehem Steel Co.	21	1,640,000	3	260,000	....	.....	1,900,000
Carnegie-Illinois Steel Corporation	2	18,900	....	.....	1	5,500	24,400
Latrobe							
American Locomotive Company	3	103,000	....	.....	....	.....	103,000
Latrobe Electric Steel Company	....	.....	....	.....	4	12,000	12,000
Vanadium-Alloys Steel Company	....	.....	....	.....	3	11,910	11,910
McKeesport							
Firth Sterling Steel & Carbide Corp.	....	.....	....	.....	3	20,040	20,040
National Tube Co.	3	876,000	3	288,000	....	.....	1,164,000
Midland							
Crucible Steel Company of America	11	793,200	....	.....	4	204,750	997,950
Monaca							
Colonial Steel Co.	....	.....	....	.....	1	7,020	7,020
Monessen							
Pittsburgh Steel Co.	12	1,072,000	....	.....	....	.....	1,072,000
Munhall							
Carnegie-Illinois Steel Corporation	61	4,279,000	....	.....	....	.....	4,279,000
Oakmont							
Edgewater Steel Co.	4	140,170	....	.....	....	.....	140,170
Philadelphia							
Disston & Sons, Inc., Henry	....	.....	....	.....	2	25,000	25,000
Midvale Company	8	430,830	....	.....	9	92,940	523,770
Phoenixville							
Phoenix-Apollo Steel Company	5	231,400	....	.....	....	.....	231,400
Pittsburgh							
Crucible Steel Co. of America	4	142,860	....	.....	4	40,240	183,100
Heppenstall Company	2	39,880	....	.....	2	6,700	46,580
Jones & Laughlin Steel Corporation	16	1,800,000	2	336,000	1	1,500	2,137,500
Reading							
Carpenter Steel Co.	....	.....	....	.....	6	74,880	74,880
Steelton							
Bethlehem Steel Co.	11	886,000	....	.....	1	.....	886,000
Vandergrift							
Carnegie-Illinois Steel Corporation	12	500,000	....	.....	....	.....	500,000
Washington							
Jessop Steel Company	....	.....	....	.....	8	50,000	50,000
West Homestead							
Mesta Machine Co.	4	85,000	....	.....	1	20,000	105,000
Total	351	25,335,380	11	1,466,000	(g) 91	1,299,850	28,101,230
Rhode Island							
Phillipsdale							
Washburn Wire Co.	3	60,000	....	.....	....	.....	60,000
Tennessee							
Knoxville							
Knoxville Iron Co.	....	.....	....	.....	2	38,000	38,000
Texas							
Fort Worth							
Texas Steel Company	....	.....	....	.....	2	22,320	22,320
Houston							
Sheffield Steel Corporation	6	560,000	....	.....	....	.....	560,000
Total	6	560,000	....	.....	2	22,320	582,320
Utah							
Geneva							
Geneva Steel Co.	9	1,283,400	....	.....	....	.....	1,283,400
Virginia							
Newport News							
(d) Newport News Shipbuilding & Dry Dock Company	....	.....	....	.....	2	7,500	7,500
Washington							
Seattle							
Bethlehem Pacific Coast Steel Corp.	5	210,000	....	.....	....	.....	210,000
Isaacson Iron Works	....	.....	....	.....	2	104,400	104,400
Northwest Steel Rolling Mills, Inc.	....	.....	....	.....	2	32,400	32,400
Total	5	210,000	....	.....	4	136,800	346,800
West Virginia							
Benwood							
Wheeling Steel Corp.	....	.....	1	336,000	....	.....	336,000
Weirton							
Weirton Steel Co.	12	1,950,000	(c) 2	.....	....	.....	1,950,000
Total	12	1,950,000	4	336,000	....	.....	2,286,000
Grand Total	954	83,610,690	(f) 39	5,226,000	(g) 223	5,396,770	94,233,460

(a) Crucible furnace.
(b) Not described in this Directory; owns plant at Anniston, Ala., formerly operated by Kilby Steel Company; steelmaking furnaces are idle.
(c) Used in melting charge for open hearth furnaces.
(d) Not described in this Directory.
(e) Includes 3 converters used only in melting charge for open hearth furnaces.
(f) Includes 10 converters used only in melting charge for open hearth furnaces.
(g) Includes 1 crucible furnace, annual capacity, 20 tons.

Finished Steel

Return to "practical" method of compiling data shows that steel industry can make 73,872,430 tons of finished products annually. Half of 10 million ton increase is in light flat-rolled products

IN allocating steel for war purposes, it was necessary to determine the maximum tonnage of each finished steel product that could be produced under emergency conditions and without regard to the availability of steel ingots.

For instance, the shipbuilding program required a huge tonnage of plates and it was found that by converting continuous strip mills to plate production, capacity could be stepped up to about 18,000,000 tons. And, production actually exceeded 13,000,000 tons annually in 1943 and 1944.

On the basis of maximum potential capacities for each product, the total hot rolled capacity was 150,000,000 tons Jan. 1, 1945, which was of course, far in excess of the quantity of raw steel available. Under normal circumstances, the industry figures capacity for each product on the practical basis of both experience and availability of steel. Several products usual-

TOTAL FINISHED HOT ROLLED STEEL CAPACITY BY COMPANIES

Products	Annual Capacity (N. T.)		
	Steel	Iron	Total
Companies:			
Acme Steel Company	545,000	.....	545,000
Alan Wood Steel Company	333,600	.....	333,600
Allegheny Ludlum Steel Corporation	324,250	.....	324,250
American Chain & Cable Company, Inc.	175,000	.....	175,000
American Locomotive Company	123,000	.....	123,000
American Swedo Iron Corporation	12,000	.....	12,000
Ames & Company, Inc., W.	35,000	.....	35,000
Armco Steel Corporation	1,522,440	.....	1,522,440
Sheffield Steel Corporation	806,700	.....	806,700
Total	2,329,140	.....	2,329,140
Atlantic Steel Company	130,900	.....	130,900
Babcock & Wilcox Tube Company	30,240	.....	30,240
Baldwin Locomotive Works	91,750	.....	91,750
Bethlehem Steel Corporation:			
Bethlehem Steel Company	9,950,000	.....	9,950,000
Bethlehem Pacific Coast Steel Corporation	549,000	.....	549,000
Total	10,499,000	.....	10,499,000
Boiardi Steel Corporation	80,000	.....	80,000
Borg-Warner Corporation	440,000	.....	440,000
Braeburn Alloy Steel Corporation	3,200	.....	3,200
Buffalo Bolt Company	65,600	.....	65,600
Buffalo Steel Company	72,000	.....	72,000
Byers Company, A. M.	150,000	310,000	460,000
Carpenter Steel Company	24,600	.....	24,600
Central Iron and Steel Company	288,000	.....	288,000
Colorado Fuel and Iron Corporation	1,121,600	.....	1,121,600
Columbia Tool Steel Company	1,800	.....	1,800
Connors Steel Company	94,000	.....	94,000
Continental Steel Corporation	245,000	.....	245,000
Copperweld Steel Company	367,000	.....	367,000
Crucible Steel Company of America	697,000	.....	697,000
Disston & Sons, Inc., Henry	38,600	.....	38,600
Driver Company, Wilbur B.	6,000	.....	6,000
Eastern Stainless Steel Corporation	25,000	.....	25,000
Edgewater Steel Company	81,960	.....	81,960
Empire Steel Company	144,000	.....	144,000
Ewald Iron Company	.....	12,000	12,000
Falls Hollow Staybolt Company	.....	8,000	8,000
Firth Sterling Steel and Carbide Corporation	11,550	.....	11,550
Follansbee Steel Corporation	50,000	.....	50,000
Ford Motor Company	899,750	.....	899,750
Granite City Steel Company	400,000	.....	400,000
Harrisburg Steel Corporation	75,000	.....	75,000
Heller Brothers Company	18,000	.....	18,000
Highland Iron & Steel, Inc.	38,000	3,700	41,700
Inland Steel Company	2,540,000	.....	2,540,000
International Detrola Corporation	180,000	.....	180,000
International Harvester Company	677,300	.....	677,300
Janson Steel & Iron Company	.....	15,000	15,000
Jersey Shore Steel Company	30,000	.....	30,000
Jessop Steel Company	26,000	.....	26,000
Jones & Laughlin Steel Corporation	3,678,000	.....	3,678,000
Joslyn Manufacturing & Supply Company	32,000	.....	32,000
Judson Steel Corporation	54,000	.....	54,000
Kaiser Company, Inc.	608,800	.....	608,800
Kaiser & Frazer Parts Corporation	55,000	.....	55,000
Keystone Steel & Wire Company	254,000	.....	254,000
Knoxville Iron Company	88,000	.....	88,000
Laclede Steel Company	390,000	.....	390,000
Latrobe Electric Steel Company	5,500	.....	5,500
Lockhart Iron and Steel Company	.....	60,000	60,000
Lukens Steel Company	436,800	.....	436,800
McLouth Steel Corporation	96,000	.....	96,000
Mahoning Valley Steel Company	85,000	.....	85,000
Midvale Company	69,000	.....	69,000
Missouri Rolling Mill Corporation	70,000	.....	70,000
National Steel Corporation:			
Great Lakes Steel Corporation	1,575,000	.....	1,575,000
Weirton Steel Company	1,585,000	.....	1,585,000
Total	3,160,000	.....	3,160,000
Northern Steel Inc.	12,500	.....	12,500
Northwest Steel Rolling Mills, Inc.	25,000	.....	25,000
Northwestern Steel & Wire Company	218,000	.....	218,000
Oregon Steel Mills	100,000	.....	100,000
Pacific States Steel Corporation	85,000	.....	85,000
Parkersburg Steel Company	36,000	.....	36,000
Phoenix-Apollo Steel Company	391,000	.....	391,000
Phoenix Manufacturing Company	15,000	.....	15,000
Pine Iron Works Company	17,400	.....	17,400
Pittsburgh Steel Company	720,000	.....	720,000
Pollak Steel Company	72,000	.....	72,000
Poor & Company	12,000	.....	12,000
Portsmouth Steel Corporation	372,000	.....	372,000
Reeves Steel and Manufacturing Company	75,000	.....	75,000
Republic Steel Corporation	7,102,000	.....	7,102,000
Richmond Rolling Mills, Inc.	10,000	.....	10,000
Roebling's Sons Company (John A.)	162,000	.....	162,000
Rotary Electric Steel Company	96,000	.....	96,000
Sharon Steel Corporation	675,000	.....	675,000
Niles Rolling Mill Company	125,000	.....	125,000
Total	800,000	.....	800,000
Simmons Company	36,000	.....	36,000
Simonds Saw and Steel Company	11,180	.....	11,180
Stanley Works	150,000	.....	150,000
Superior Steel Corporation	115,000	.....	115,000
Sweet's Steel Company	55,000	.....	55,000
Texas Steel Company	58,500	.....	58,500
Timken Roller Bearing Company	370,500	.....	370,500
Tredegar Company	11,200	27,600	38,800
Ulster Iron Works	.....	16,000	16,000
United States Steel Corporation:			
American Steel and Wire Company	2,181,640	.....	2,181,640
Carnegie-Ilinois Steel Corporation	16,312,430	.....	16,312,430
Columbia Steel Company	826,800	.....	826,800
Geneva Steel Company	950,000	.....	950,000
National Tube Company	2,148,600	.....	2,148,600
Tennessee Coal, Iron and Railroad Company	2,594,700	.....	2,594,700
Total	25,014,170	.....	25,014,170
Universal-Cyclops Steel Corporation	43,400	.....	43,400
Vanadium-Alloys Steel Company	6,000	.....	6,000
Colonial Steel Company	7,840	.....	7,840
Total	13,840	.....	13,840
Vulcan Crucible Steel Company	3,000	.....	3,000
Washburn Wire Company	92,200	.....	92,200
West Virginia Steel and Mfg. Company	140,000	.....	140,000
Wheeling Steel Corporation	1,302,000	.....	1,302,000
Wickwire Brothers, Inc.	38,000	.....	38,000
Worth Steel Company	300,000	.....	300,000
Youngstown Sheet and Tube Company	3,195,600	.....	3,195,600
Grand Total	73,872,430	452,300	74,324,730

ly can be made on the same equipment, which also must be taken into consideration.

In compiling the accompanying data on finished steel products, the American Iron & Steel Institute returned to its previous procedure of setting up "practical" capacity figures. These cannot be compared therefore with those published in the 1945 Institute Directory and it is necessary to go back to the 1938 tabulation to check on the growth of the industry.

In the 1938-48 period, rolling mill capacity has, as might be expected, been added at approximately the same rate as new steel capacity. The following table shows steel ingot capacity, not including steel for castings, and total hot rolled product capacity:

	Jan. 1, 1948	Jan. 1, 1938	Increase
Steel Ingot Capacity	93,992,340	79,593,404	14,328,936
Hot-rolled Steel Capacity	73,872,430	63,652,796	10,219,634

Products processed cold are not included in the above figures, thus avoiding distortion of finished steel capacity figures for the industry as shown in the summary tables on this and the opposite page.

The continued trend toward lighter steel products finds reflection in the increase in capacity to produce sheets, strip and strip for tin and black plate over the past ten years. Capacity now is over 26.5 million tons, compared with 21.3 million tons Jan. 1, 1938, an increase of 5.2 million. Of this capacity, cold rolled sheets account for 8.8 million tons compared with 6.2 ten years ago.

Hot rolled bar capacity, not including reinforcing, has increased about 1.5 million tons in the ten year period to 12 million. New billet reinforcing bar capacity is down about 100,000 tons.

It will be noted that the Institute lists over a half million tons of strip mill plates in addition to over seven million tons of sheared and universal plates, making a total of about 7.8 million tons compared with 6.2 million ten years ago.

Capacity for the production of structural shapes and piling now is about 6.5 million tons compared with 5.9 in 1938.

Wire rod capacity has increased 1.3 million tons in the ten year period to 6.2 million. Skelp for use in making tubular goods now is rated at 4.4 million tons annually, which compares with 3.3 million in 1938. Capacity for making seamless tube blanks is down about 20,000 tons.

Forging ingot, bloom and billet capacity has dropped sharply to 0.8 million tons from 1.2 million. Rail capacity also is down about 350,000 tons to 3 million tons annually.

TOTAL FINISHED HOT ROLLED STEEL CAPACITY BY PRODUCTS

Products	Annual Capacity (N. T.) Steel	Iron	Total
Rails—60 lbs. or less per yard	292,800	.....	292,800
" —Over 60 lbs. per yard	2,705,600	.....	2,705,600
Long joint or splice bars and tie plates	1,154,000	.....	1,154,000
Structural shapes—Heavy	5,236,930	.....	5,236,930
" " —Light	1,058,470	.....	1,058,470
Steel piling (Rolled)	247,400	.....	247,400
Plates—Sheared	5,811,400	.....	5,811,400
" —Universal	1,371,300	.....	1,371,300
" —Strip mill	683,000	.....	683,000
Sheets—Hot rolled	18,947,570	.....	18,947,570
Hoops, cotton ties and baling bands	108,300	.....	108,300
Strip—Hot rolled	3,527,590	.....	3,527,590
Strip for cold reduced black plate and tin plate	4,114,300	.....	4,114,300
Bars—Other than concrete reinforcement	12,008,260	142,300	12,150,560
" —Concrete reinforcement—New billet steel	1,124,100	.....	1,124,100
" " —Rerolled	388,700	.....	388,700
Wire rods	6,195,170	.....	6,195,170
Skelp	4,095,900	310,000	4,405,900
Blanks or pierced billets for seamless tubes	3,285,040	.....	3,285,040
Wheels and axles (Rolled)	404,050	.....	404,050
Ingots, blooms and billets for forging purposes	806,590	.....	806,590
All other finished hot rolled	305,960	.....	305,960
TOTAL	73,872,430	452,300	74,324,730
TOTAL STEEL INGOT CAPACITY	93,922,340	.....	.....
PERCENT TO INGOT CAPACITY	78.7%	.....	.....

FINISHED STEEL PRODUCTS MADE BY INDIVIDUAL COMPANIES

Ingots, Blooms, Billets (Forging)	Annual capacity (N. T.)
Alan Wood Steel Company	110,500
Allegheny Ludlum Steel Corporation	1,450
Armco Steel Corporation	2,140
Sheffield Steel Corporation	7,600
TOTAL	9,740
Bethlehem Steel Corporation:	
Bethlehem Steel Company	109,000
Colorado Fuel and Iron Corporation	500
Crucible Steel Company of America	52,000
Harrisburg Steel Corporation	75,000
Inland Steel Company	20,000
International Harvester Company	36,000
Kaiser Company, Inc.	800
Timken Roller Bearing Company	20,000
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	342,000
Tennessee Coal, Iron and Railroad Co.	11,600
TOTAL	353,600
Youngstown Sheet and Tube Company	18,000
GRAND TOTAL	806,590

Blanks or Pierced Billets for Seamless Tubes	
Companies:	
Allegheny Ludlum Steel Corporation	4,000
Babcock & Wilcox Tube Company	30,240
Crucible Steel Company of America	90,000
Inland Steel Company	5,000
Jones & Laughlin Steel Corporation	420,000
Pittsburgh Steel Company	360,000
Republic Steel Corporation	(a)
Timken Roller Bearing Company	216,500
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	59,700
National Tube Company	1,619,600
TOTAL	1,679,300
Youngstown Sheet and Tube Company	480,000
GRAND TOTAL	3,285,040

(a) Included in capacity of bars—other than concrete reinforcement.

Wire Rods	Annual capacity (N. T.)
American Chain & Cable Company, Inc.	175,000
Armco Steel Corporation	18,800
Sheffield Steel Corporation	239,600
TOTAL	258,400
Atlantic Steel Company	43,750
Bethlehem Steel Corporation:	
Bethlehem Steel Company	627,000
Bethlehem Pacific Coast Steel Corporation	22,000
TOTAL	649,000
Buffalo Bolt Company	24,500
Colorado Fuel and Iron Corporation	274,000
Continental Steel Corporation	150,000
Copperweld Steel Company	55,000
Crucible Steel Company of America	25,200
Driver Company, Wilbur B.	6,000
International Harvester Company	2,500
Jones & Laughlin Steel Corporation	264,000
Keystone Steel & Wire Company	254,000
Laclede Steel Company	120,000
Northwestern Steel & Wire Company	218,000
Pittsburgh Steel Company	360,000
Portsmouth Steel Corporation	200,000
Republic Steel Corporation	385,000
Roebling's Sons Company (John A.)	145,000
United States Steel Corporation:	
American Steel and Wire Company	1,997,020
Carnegie-Illinois Steel Corporation	2,000
Columbia Steel Company	219,100
Tennessee Coal, Iron and Railroad Co.	169,000
TOTAL	2,387,120
Universal-Cyclops Steel Corporation	6,700
Washburn Wire Company	61,000
Wickwire Brothers, Inc.	38,000
Youngstown Sheet and Tube Company	93,000
GRAND TOTAL	6,195,170

Cold Finished Bars	Annual capacity (N. T.)
Companies:	
Allegheny Ludlum Steel Corporation	16,000
Anchor Drawn Steel Company	2,850
Armco Steel Corporation	34,600
Bethlehem Steel Company	53,000
Bliss & Laughlin, Inc.	325,000
Buffalo Bolt Company	3,200
Carpenter Steel Company	22,200
Columbia Steel & Shafting Company	136,000
Compressed Steel Shafting Company	20,000
Copperweld Steel Company	50,140
Cumberland Steel Company	40,000
Crucible Steel Company of America	137,340
Cuyahoga Steel & Wire Company	15,000
Firth Sterling Steel & Carbide Corporation	300
Fitzsimons Steel Company	140,000
Fort Howard Steel & Wire	12,000
International Harvester Company	30,000
Jones & Laughlin Steel Corporation	480,000
Joslyn Manufacturing & Supply Company	28,000
Keystone Drawn Steel Company	24,000
Kidd Drawn Steel Company	4,800
La Salle Steel Company	230,000
Latrobe Electric Steel Company	1,100
Medart Company	2,400
Moltrup Steel Products Company	72,000
Monarch Steel Company, Inc.	50,000
Nelsen Steel & Wire Company	10,000
Pacific Tube Company	10,000
Pilgrim Drawn Steel Corporation	36,000
Pittsburgh Tool Steel Wire Company	5,200
Precision Drawn Steel Company	51,000
Republic Steel Corporation	454,000
Reary Electric Steel Company	55,000
Superior Drawn Steel Company	54,600
Timken Roller Bearing Company	80,000
United States Steel Corporation:	
American Steel and Wire Company	56,030
Universal-Cyclops Steel Company	7,350
Western Automatic Machine Screw Company	52,500
Wyckoff Steel Company	337,650
Youngstown Sheet and Tube Company	78,000
TOTAL	3,217,260

Skelp

	Annual Capacity (N. T.)		
	Steel	Iron	Total
Companies:			
Bethlehem Steel Corporation:			
Bethlehem Steel Company	405,000	.....	405,000
Borg-Warner Corporation	10,000	.....	10,000
Byers Company, A. M.	.....	310,000	310,000
Jones & Laughlin Steel Corporation	420,000	.....	420,000
Kaiser Company, Inc.	153,000	.....	153,000
Laclede Steel Company	80,000	.....	80,000
Republic Steel Corporation	1,103,000	.....	1,103,000
United States Steel Corporation:			
Carnegie-Illinois Steel Corporation	344,900	.....	344,900
National Tube Company	509,000	.....	509,000
Total	853,900	.....	853,900
Wheeling Steel Corporation	327,000	.....	327,000
Youngstown Sheet and Tube Company	744,000	.....	744,000
Grand Total	4,095,900	310,000	4,405,900

Structural Shapes and Rolled Steel Piling

	Annual Capacity (N. T.)		
	Structural Shapes		Steel Piling
	Heavy	Light	
Companies:			
Armco Steel Corporation:			
Sheffield Steel Corporation	71,000	42,250	.....
Atlantic Steel Corporation	.....	16,000	.....
Bethlehem Steel Corporation:			
Bethlehem Steel Company	1,551,000	248,000	128,000
Bethlehem Pacific Coast Steel Corporation	144,000	.....	.....
Total	1,695,000	248,000	128,000
Boiardi Steel Corporation	.....	50,000	.....
Colorado Fuel and Iron Corporation	55,000	20,000	.....
Inland Steel Company	250,000	100,000	5,000
International Harvester Company	22,000	.....	.....
Jones & Laughlin Steel Corporation	110,000	50,000	.....
Kaiser Company, Inc.	72,000	7,000	.....
Knoxville Iron Company	.....	22,000	.....
Laclede Steel Company	.....	15,000	.....
National Steel Corporation:			
Weirton Steel Company	(a) 200,000	.....	.....
Northern Steel Inc.	.....	3,500	.....
Pacific States Steel Corporation	.....	50,000	.....
Phoenix-Apollo Steel Company	224,000	35,000	.....
United States Steel Corporation:			
Carnegie-Illinois Steel Corporation	2,067,500	331,000	114,400
Columbia Steel Company	17,430	10,320	.....
Geneva Steel Company	250,000	.....	.....
Tennessee Coal, Iron and Railroad Co.	180,000	.....	.....
Total	2,514,930	341,320	114,400
West Virginia Steel and Manufacturing Co.	5,000	20,000	.....
Youngstown Sheet and Tube Company	18,000	38,400	.....
Grand Total	5,236,930	1,058,470	247,400

(a) Includes steel piling and tie plates.

Bars—Concrete Reinforcement

	Annual Capacity (N. T.)		
	New Billet	Rerolled	Total
Companies:			
Armco Steel Corporation:			
Sheffield Steel Corporation	141,350	24,000	165,350
Atlantic Steel Company	4,500	.....	4,500
Bethlehem Steel Corporation:			
Bethlehem Steel Company	252,000	.....	252,000
Bethlehem Pacific Coast Steel Corporation	135,000	.....	135,000
Total	387,000	.....	387,000
Boiardi Steel Corporation	.....	10,000	10,000
Borg-Warner Corporation	.....	45,000	45,000
Buffalo Steel Company	25,000	.....	25,000
Colorado Fuel and Iron Corporation	28,000	.....	28,000
Connors Steel Company	10,000	55,000	65,000
Heller Brothers Company	.....	1,200	1,200
Inland Steel Company	40,000	20,000	60,000
Jones & Laughlin Steel Corporation	30,000	.....	30,000
Judson Steel Corporation	40,000	.....	40,000
Kaiser Company, Inc.	6,000	.....	6,000
Knoxville Iron Company	15,000	20,000	35,000
Laclede Steel Company	27,500	72,000	99,500
Missouri Rolling Mill Corporation	.....	53,500	53,500
Northern Steel Inc.	.....	9,000	9,000
Northwest Steel Rolling Mills, Inc.	8,000	.....	8,000
Pacific States Steel Corporation	10,000	.....	10,000
Pollack Steel Company	.....	30,000	30,000
Republic Steel Corporation	(a)	.....	.....
Simmons Company	.....	3,000	3,000
Sweet's Steel Company	.....	(a)	.....
Texas Steel Company	.....	36,000	36,000

(a) Included in capacity of bars—other than concrete reinforcement.

Bars—Concrete Reinforcement (*Continued*)

	Annual Capacity (N. T.)		
	New Billet	Rerolled	Total
Companies (*Continued*):			
United States Steel Corporation:			
Carnegie-Illinois Steel Corporation	154,100	.....	154,100
Columbia Steel Company	127,250	.....	127,250
Tennessee Coal, Iron and Railroad Co.	67,400	.....	67,400
Total	348,750	.....	348,750
West Virginia Steel and Manufacturing Co.	.....	10,000	10,000
Youngstown Sheet and Tube Company	3,000	.....	3,000
Grand Total	1,124,100	388,700	1,512,800

Hot Rolled Bars—Other than Concrete Reinforcement

	Annual Capacity (N. T.)		
	Steel	Iron	Total
Companies:			
Allegheny Ludlum Steel Corporation	47,800	.....	47,800
American Swedo Iron Corporation	12,000	.....	12,000
Ames & Company, W.	35,000	.....	35,000
Armco Steel Corporation	19,000	.....	19,000
Sheffield Steel Corporation	139,400	.....	139,400
Total	158,400	.....	158,400
Atlantic Steel Company	22,750	.....	22,750
Bethlehem Steel Corporation:			
Bethlehem Steel Company	1,457,000	.....	1,457,000
Bethlehem Pacific Coast Steel Corporation	226,000	.....	226,000
Total	1,683,000	.....	1,683,000
Boiardi Steel Corporation	20,000	.....	20,000
Borg-Warner Corporation	92,000	.....	92,000
Braeburn Alloy Steel Corporation	3,200	.....	3,200
Buffalo Bolt Company	40,500	.....	40,500
Buffalo Steel Company	47,000	.....	47,000
Byers Company, A. M.	50,000	.....	50,000
Carpenter Steel Company	24,600	.....	24,600
Colorado Fuel and Iron Corporation	75,900	.....	75,900
Columbia Tool Steel Company	1,800	.....	1,800
Connors Steel Company	7,400	.....	7,400
Copperweld Steel Company	312,000	.....	312,000
Crucible Steel Company of America	459,000	.....	459,000
Disston & Sons, Inc., Henry	22,400	.....	22,400
Ewald Iron Company	.....	12,000	12,000
Falls Hollow Staybolt Company	.....	8,000	8,000
Firth Sterling Steel and Carbide Corporation	11,550	.....	11,550
Ford Motor Company	59,750	.....	59,750
Heller Brothers Company	16,800	.....	16,800
Highland Iron & Steel, Inc.	38,000	3,700	41,700
Inland Steel Company	320,000	.....	320,000
International Harvester Company	503,800	.....	503,800
Janson Steel & Iron Company	.....	15,000	15,000
Jersey Shore Steel Company	30,000	.....	30,000
Jessop Steel Company	8,000	.....	8,000
Jones & Laughlin Steel Corporation	510,000	.....	510,000
Joslyn Manufacturing & Supply Company	27,000	.....	27,000
Judson Steel Corporation	14,000	.....	14,000
Kaiser Company, Inc.	71,000	.....	71,000
Knoxville Iron Company	25,000	.....	25,000
Laclede Steel Company	27,000	.....	27,000
Latrobe Electric Steel Company	5,500	.....	5,500
Lockhart Iron and Steel Company	.....	(a) 60,000	60,000
Midvale Company	9,000	.....	9,000
Missouri Rolling Mill Corporation	16,500	.....	16,500
National Steel Corporation:			
Great Lakes Steel Corporation	60,000	.....	60,000
Northwest Steel Rolling Mills, Inc.	17,000	.....	17,000
Oregon Steel Mills	100,000	.....	100,000
Pacific States Steel Corporation	25,000	.....	25,000
Phoenix Manufacturing Company	15,000	.....	15,000
Pollak Steel Company	42,000	.....	42,000
Republic Steel Corporation	(b) 3,166,000	.....	3,166,000
Richmond Rolling Mills, Inc.	10,000	.....	10,000
Rotary Electric Steel Company	96,000	.....	96,000
Simmons Company	33,000	.....	33,000
Simonds Saw and Steel Company	6,000	.....	6,000
Sweet's Steel Company	(c) 25,000	.....	25,000
Texas Steel Company	22,500	.....	22,500
Timken Roller Bearing Company	134,000	.....	134,000
Tredegar Company	.....	27,600	27,600
Ulster Iron Works	.....	16,000	16,000
United States Steel Corporation:			
American Steel and Wire Company	102,500	.....	102,500
Carnegie-Illinois Steel Corporation	2,704,500	.....	2,704,500
Columbia Steel Company	79,490	.....	79,490
Tennessee Coal, Iron and Railroad Co.	158,400	.....	158,400
Total	3,044,890	.....	3,044,890
Universal-Cyclops Steel Corporation	6,500	.....	6,500
Vanadium-Alloys Steel Company	6,000	.....	6,000
Colonial Steel Company	6,720	.....	6,720
Total	12,720	.....	12,720
Vulcan Crucible Steel Company	3,000	.....	3,000
West Virginia Steel and Manufacturing Co.	10,000	.....	10,000
Youngstown Sheet and Tube Company	372,000	.....	372,000
Grand Total	12,008,260	142,300	12,150,560

(a) Includes steel bars.
(b) Includes concrete reinforcement bars and tube rounds.
(c) Includes splice bars, tie plates and rerolled concrete reinforcement bars.

Sheets—Cold Rolled, Galvanized, and Long Terne

	Annual Capacity (N. T.)		
	Cold rolled sheets	Galvanized sheets	Long terne sheets
Companies:			
Allegheny Ludlum Steel Corporation	15,000	.....	.....
Armco Steel Corporation	994,000	381,000	70,000
Bethlehem Steel Corporation:			
Bethlehem Steel Company	716,000	180,000	.....
Borg-Warner Corporation	.....	90,000	20,000
Continental Steel Corporation	.....	75,000	.....
Crucible Steel Company of America	9,600	.....	.....
Eastern Stainless Steel Corporation	13,000	.....	.....
Empire Steel Company	.....	.....	14,400
Follansbee Steel Corporation	.....	.....	12,000
Ford Motor Company	360,000	.....	.....
Granite City Steel Company	200,000	60,000	.....
Inland Steel Company	500,000	86,400	.....
International Detrola Corporation	.....	96,000	16,000
Jessop Steel Company	2,000	.....	.....
Jones & Laughlin Steel Corporation	670,000	.....	.....
Kaiser & Frazer Parts Corporation	.....	55,000	.....
National Steel Corporation:			
Great Lakes Steel Corporation	1,500,000	25,000	.....
Weirton Steel Company	750,000	210,000	30,000
TOTAL	2,250,000	235,000	30,000
Parkersburg Steel Company	.....	25,000	.....
Phoenix-Apollo Steel Company	.....	56,000	.....
Reeves Steel and Manufacturing Company	.....	42,000	.....
Republic Steel Corporation	970,000	355,000	.....
Sharon Steel Corporation:			
Niles Rolling Mill Company	.....	51,600	.....
United States Steel Corporation:			
Carnegie-Illinois Steel Corporation	1,064,045	298,100	41,300
Columbia Steel Company	.....	102,520	.....
Tennessee Coal, Iron and Railroad Co.	.....	213,000	.....
TOTAL	1,064,045	613,620	41,300
Washington Steel Corporation	49,200	.....	.....
Wheeling Steel Corporation	480,000	390,000	24,000
Youngstown Sheet and Tube Company	466,000	.....	.....
GRAND TOTAL	8,758,845	2,791,620	227,700

Plates

	Annual Capacity (N. T.)		
	Sheared	Universal	Strip Mill
Companies:			
Alan Wood Steel Company	145,600	.....	.....
Allegheny Ludlum Steel Corporation	6,000	.....	.....
Armco Steel Corporation:			
Sheffield Steel Corporation	109,000	.....	.....
Bethlehem Steel Corporation:			
Bethlehem Steel Company	660,000	360,000	.....
Bethlehem Pacific Coast Steel Corporation	.....	10,000	.....
TOTAL	660,000	370,000	.....
Borg-Warner Corporation	25,000	.....	.....
Byers Company, A. M.	30,000	70,000	.....
Central Iron and Steel Company	182,400	105,600	.....
Colorado Fuel and Iron Corporation	7,000	.....	.....
Crucible Steel Company of America	42,000	12,000	.....
Disston & Sons, Inc., Henry	5,600	.....	.....
Empire Steel Company	.....	24,000	.....
Inland Steel Company	135,000	85,000	185,000
International Harvester Company	.....	60,000	.....
Jessop Steel Company	10,000	.....	.....
Jones & Laughlin Steel Corporation	.....	.....	156,000
Kaiser Company, Inc.	228,000	2,000	.....
Lukens Steel Company	436,800	.....	.....
Pine Iron Works Company	17,400	.....	.....
Republic Steel Corporation	.....	.....	12,000
Sharon Steel Corporation	75,000	.....	.....
Simonds Saw and Steel Company	400	.....	.....
United States Steel Corporation:			
Carnegie-Illinois Steel Corporation	2,279,100	624,700	.....
Geneva Steel Company	700,000	.....	.....
Tennessee Coal, Iron and Railroad Co.	400,000	18,000	.....
TOTAL	3,379,100	642,700	.....
Universal-Cyclops Steel Corporation	17,100	.....	.....
Wheeling Steel Corporation	.....	.....	252,000
Worth Steel Company	300,000	.....	.....
Youngstown Sheet and Tube Company	.....	.....	78,000
GRAND TOTAL	5,811,400	1,371,300	683,000

Miscellaneous Finished Hot Rolled Products

	Annual capacity (N. T.)
Companies:	
American Locomotive Company	123,000
Baldwin Locomotive Works	44,000
Colorado Fuel and Iron Corporation	24,000
Edgewater Steel Company	54,960
Midvale Company	60,000
TOTAL	305,960

Strip—Cold Rolled and Galvanized

	Annual Capacity (N. T.)	
	Cold rolled strip	Galvanized strip
Companies:		
Acme Steel Company	435,000	95,000
Allegheny Ludlum Steel Corporation	100,000	.....
Wallingford Steel Company	40,000	.....
TOTAL	140,000	.....
Alloy Metal Wire Company, Inc.	400	.....
American Shim Steel Company	12,000	.....
Atlantic Steel Company	.....	13,140
Blair Strip Steel Company	18,000	.....
Buffalo Bolt Company	2,500	.....
California Cold Rolled Steel Corporation	31,200	.....
Carpenter Steel Company	8,500	.....
Cleveland Cold Rolling Mills Company	240	.....
Cold Metal Products Company	90,000	.....
Crucible Steel Company of America	7,800	.....
Detroit Steel Corporation	150,000	.....
Disston & Sons, Inc., Henry	780	.....
Elliott Brothers Steel Company	19,000	.....
Follansbee Steel Corporation	180,000	.....
Greer Steel Company	72,000	9,000
Griffin Manufacturing Company	36,000	.....
Hind Steel Company, Inc.	5,000	.....
Inland Steel Company	24,000	.....
Jessop Steel Company	1,000	.....
Jones & Laughlin Steel Corporation	42,000	.....
Kaiser Company, Inc.	18,000	.....
McLouth Steel Corporation	69,000	.....
National-Standard Company	6,000	.....
National Steel Corporation:		
Great Lakes Steel Corporation	60,000	.....
Weirton Steel Company	105,000	70,000
TOTAL	165,000	70,000
Newman-Crosby Steel Corporation	20,000	.....
Republic Steel Corporation	210,000	.....
Rhode Island Steel Corporation	3,000	.....
Roebling's Sons Company, John A.	22,500	10,000
Rome Strip Steel Company, Inc.	14,400	.....
Sharon Steel Corporation	100,000	60,000
Brainard Steel Company	25,000	15,000
Detroit Tube & Steel Company	78,000	.....
TOTAL	203,000	75,000
Simonds Saw & Steel Company	200	.....
Stanley Works	164,000	.....
Superior Steel Corporation	85,000	.....
Thomas Steel Company	65,000	30,000
Thompson Wire Company	40,000	.....
United States Steel Corporation:		
American Steel and Wire Company	238,820	36,810
Columbia Steel Company	.....	47,600
TOTAL	238,820	84,410
Universal-Cyclops Steel Corporation	15,000	.....
Wallace Barnes Company	10,000	.....
Washburn Wire Company	23,100	.....
Worcester Pressed Steel Company	7,500	.....
GRAND TOTAL	2,654,940	386,550

Ordinary and Chemically Treated Black Plate, Hot Dipped Tin and Terne Plate, and Electrolytic Tin Plate

	Annual Capacity (N. T.)			
	Ordinary black plate	Chemically treated black plate	Hot dipped tin and terne plate	Electrolytic tin plate
Companies:				
Bethlehem Steel Corporation:				
Bethlehem Steel Company	10,000	74,000	648,000	290,000
Granite City Steel Company	.....	.....	70,000	50,000
Inland Steel Company	.....	.....	192,000	60,000
Jones & Laughlin Steel Corporation	77,000	.....	408,000	160,800
National Steel Corporation:				
Weirton Steel Company	20,000	.....	* 636,250	* 390,000
Republic Steel Corporation	.....	20,000	190,000	110,000
United States Steel Corporation:				
Carnegie-Illinois Steel Corporation	† 186,000	.....	617,900	667,300
Tennessee Coal, Iron and Railroad Co.	.....	23,500	415,000	188,000
TOTAL	186,000	23,500	1,032,900	855,300
Wheeling Steel Corporation	150,000	.....	315,000	110,000
Youngstown Sheet and Tube Company	30,000	.....	222,000	150,000
GRAND TOTAL	473,000	117,500	3,714,150	2,176,100

* The combined capacity for hot dipped and electrolytic tin plate is limited to 800,000 tons.

† Includes capacity of chemically treated black plate.

Hot Rolled Sheets	Annual capacity (N. T.)
Companies:	
Alan Wood Steel Company	77,500
Allegheny Ludlum Steel Corporation	135,000
Armco Steel Corporation	1,428,500
Sheffield Steel Corporation	32,500
TOTAL	1,461,000
Bethlehem Steel Corporation:	
Bethlehem Steel Company	2,320,000
Borg-Warner Corporation	265,000
Continental Steel Corporation	95,000
Crucible Steel Company of America	16,800
Disston & Sons, Inc., Henry	10,600
Eastern Stainless Steel Corporation	25,000
Empire Steel Company	120,000
Follansbee Steel Corporation	50,000
Ford Motor Company	840,000
Granite City Steel Company	280,000
Inland Steel Company	1,000,000
International Detrola Corporation	180,000
International Harvester Company	18,000
Jessop Steel Company	8,000
Jones & Laughlin Steel Corporation	1,314,000
Kaiser Company, Inc.	24,000
Kaiser-Frazer Parts Corporation	55,000
Mahoning Valley Steel Company	85,000
National Steel Corporation:	
Great Lakes Steel Corporation	1,275,000
Weirton Steel Company	(a)1,385,000
TOTAL	2,660,000
Parkersburg Steel Company	36,000
Phoenix-Apollo Steel Company	132,000
Portsmouth Steel Corporation	100,000
Reeves Steel and Manufacturing Company	75,000
Republic Steel Corporation	1,530,000
Sharon Steel Corporation:	
Niles Rolling Mill Company	125,000
Simonds Saw and Steel Company	4,000
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	3,606,100
Columbia Steel Company	274,350
Tennessee Coal, Iron and Railroad Co.	268,000
TOTAL	4,148,450
Universal-Cyclops Steel Corporation	13,100
Vanadium-Alloys Steel Company:	
Colonial Steel Company	1,120
Wheeling Steel Corporation	723,000
Youngstown Sheet and Tube Company	1,020,000
GRAND TOTAL	18,947,570

(a) Includes hot rolled strip.

Hot Rolled Strip	Annual capacity (N. T.)
Companies:	
Acme Steel Company	545,000
Allegheny Ludlum Steel Corporation	130,000
Atlantic Steel Company	25,500
Borg-Warner Corporation	3,000
Buffalo Bolt Company	600
Colorado Fuel and Iron Corporation	900
Connors Steel Company	14,000
Inland Steel Company	15,000
International Harvester Company	35,000
Jones & Laughlin Steel Corporation	44,000
Joslyn Manufacturing & Supply Company	5,000
Kaiser Company, Inc.	45,000
Knoxville Iron Company	6,000
Laclede Steel Company	48,500
McLouth Steel Corporation	96,000
National Steel Corporation:	
Great Lakes Steel Corporation	240,000
Republic Steel Corporation	494,000
Roebling's Sons Company (John A.)	17,000
Sharon Steel Corporation	600,000
Simonds Saw and Steel Company	780
Stanley Works	150,000
Superior Steel Corporation	115,000
United States Steel Corporation:	
American Steel and Wire Company	82,120
Carnegie-Illinois Steel Corporation	760,030
Columbia Steel Company	8,860
Tennessee Coal, Iron and Railroad Co.	8,200
TOTAL	859,210
Washburn Wire Company	31,200
Youngstown Sheet and Tube Company	7,200
GRAND TOTAL	3,527,590

Strip for Cold Reduced Black Plate & Tin Plate	
Companies:	
Bethlehem Steel Corporation:	
Bethlehem Steel Company	890,000
Granite City Steel Company	120,000
Inland Steel Company	195,000
Jones & Laughlin Steel Corporation	360,000
National Steel Corporation:	
Weirton Steel Company	(a)
Republic Steel Corporation	250,000
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	1,351,300
Tennessee Coal, Iron and Railroad Co.	624,000
TOTAL	1,975,300
Youngstown Sheet and Tube Company	324,000
GRAND TOTAL	4,114,300

(a) Included in capacity of hot rolled sheets.

Buttweld Pipe	Annual capacity (N. T.)
Companies:	
Bethlehem Steel Company	288,000
Byers Company, A. M.	47,000
Fretz-Moon Tube Company, Inc.	52,000
Jones & Laughlin Steel Corporation	190,000
Kaiser Company, Inc.	144,000
Laclede Steel Company	54,000
Mercer Tube & Mfg. Company	80,000
National Supply Company	204,000
Pittsburgh Tube Company	60,000
Plymouth Tube Company	250
Republic Steel Corporation	250,000
Service Steel Company	500
Sharon Tube Company	9,000
Simmons Company	3,100
United States Steel Corporation:	
National Tube Company	503,000
Wheatland Tube Company	121,470
Wheeling Steel Corporation	160,000
Youngstown Sheet and Tube Company	336,000
TOTAL	2,502,320

Lapweld Pipe	Annual capacity (N. T.)
Companies:	
Bethlehem Steel Company	72,000
Byers Company, A. M.	90,000
Jones & Laughlin Steel Corporation	110,000
National Supply Company	90,000
South Chester Tube Company	108,000
Youngstown Sheet and Tube Company	199,200
TOTAL	669,200

Gasweld Pipe	Annual capacity (N. T.)
Companies:	
Laclede Steel Company	5,000
Mercer Tube & Mfg. Company	(a)
TOTAL	5,000

(a) Included in capacity of electricweld pipe.

Spiralweld Pipe	Annual capacity (N. T.)
Companies:	
Armco Steel Corporation	60,000
Naylor Pipe Company	18,000
Taylor Forge & Pipe Works	36,000
TOTAL	114,000

Electricweld Pipe and Tubes	Annual capacity (N. T.)
Companies:	
Agaloy Tubing Company	500
American Metal Products Company	30,000
Babcock & Wilcox Tube Company	46,000
Bundy Tubing Company	800
Globe Steel Tubes Company	1,400
Jackson Tube Company, Inc.	25,000
Jones & Laughlin Steel Corporation	56,000
Laclede Steel Company	10,000
Mark & Company, Clayton	24,000
Mercer Tube and Manufacturing Company	(a) 12,000
Nikoh Tube Company	200,000
Ohio Seamless Tube Company	8,400
Pacific Tube Company	6,500
Pittsburgh Steel Company	5,000
Republic Steel Corporation	762,200
Sharon Steel Corporation:	
Brainard Steel Company	6,600
Smith Corporation, A. O.	520,000
Southern Pipe & Casing Company	24,000
Standard Tube Company	40,000
Toledo Steel Tube Company	15,000
Trent Tube Manufacturing Company	1,000
Wheatland Tube Company	3,000
Youngstown Sheet and Tube Company	228,000
TOTAL	2,025,400

(a) Includes gasweld pipe.

Galvanized Pipe	Annual capacity (N. T.)
Companies:	
Bethlehem Steel Corporation:	
Bethlehem Steel Company	140,000
Byers Company, A. M.	84,000
Fretz-Moon Tube Company, Inc.	24,000
Jones & Laughlin Steel Corporation	84,000
Kaiser Company, Inc.	70,000
Laclede Steel Company	35,000
Mercer Tube and Manufacturing Company	40,000
National Supply Company	93,000
Pittsburgh Tube Company	24,000
Republic Steel Corporation	138,000
United States Steel Corporation:	
National Tube Company	216,000
Wheatland Tube Company	60,000
Wheeling Steel Corporation	120,000
Youngstown Sheet and Tube Company	138,000
TOTAL	1,266,000

Seamless Pipe and Tubes	Annual capacity (N. T.)
Companies:	
Agaloy Tubing Company	1,000
Allegheny Ludlum Steel Corporation	3,000
Babcock & Wilcox Tube Company	198,000
Columbia Steel & Shafting Company	15,000
Globe Steel Tubes Company	66,000
Ivins Steel Tube Works, Ellwood	1,300
Jones & Laughlin Steel Corporation	372,000
Michigan Seamless Tube Company	17,000
National Supply Company	312,000
Ohio Seamless Tube Company	33,600
Pacific Tube Company	10,000
Pittsburgh Steel Company	268,000
Plymouth Tube Company	1,000
Service Steel Company	2,000
Sharon Steel Corporation:	
Detroit Tube & Steel Company	25,800
Superior Tube Company	1,500
Timken Roller Bearing Company	210,000
Tube Reducing Corporation	50,000
United States Steel Corporation:	
National Tube Company	1,405,600
Youngstown Sheet and Tube Company	470,000
TOTAL	3,462,800

Conduit	Annual capacity (N. T.)
Companies:	
Fretz-Moon Tube Company, Inc.	20,000
Laclede Steel Company	5,000
Mark & Company, Clayton	6,000
National Supply Company	24,000
Nikoh Tube Company	7,500
Republic Steel Corporation	18,000
United States Steel Corporation:	
National Tube Company	36,000
Youngstown Sheet and Tube Company	51,000
TOTAL	167,500

Boiler Tubes	Annual capacity (N. T.)
Companies:	
Babcock & Wilcox Tube Company	92,000
Globe Steel Tubes Company	25,000
Pacific Tube Company	4,000
Pittsburgh Steel Company	72,000
Republic Steel Corporation	61,000
Standard Tube Company	10,000
United States Steel Corporation:	
National Tube Company	74,400
TOTAL	338,400

Mechanical Tubing	Annual capacity (N. T.)
Companies:	
Agaloy Tubing Company	1,500
American Metal Products Company	30,000
Babcock & Wilcox Tube Company	152,000
Bundy Tubing Company	800
Globe Steel Tubes Company	42,400
Jackson Tube Company, Inc.	25,000
Jones & Laughlin Steel Corporation	66,000
Laclede Steel Company	30,000
Mark & Company, Clayton	18,000
Mercer Tube & Mfg. Company	12,000
Michigan Seamless Tube Company	17,000
National Supply Company	10,000
Nikoh Tube Company	40,000
Ohio Seamless Tube Company	33,600
Pacific Tube Company	12,500
Pittsburgh Steel Company	60,000
Pittsburgh Tube Company	28,000
Republic Steel Corporation	86,000
Standard Tube Company	30,000
Timken Roller Bearing Company	210,000
Toledo Steel Tube Company	15,000
Tube Reducing Corporation	50,000
United States Steel Corporation:	
National Tube Company	192,000
Youngstown Sheet and Tube Company	12,000
TOTAL	1,173,800

Bolts, Nuts, Rivets and Washers	Annual capacity (N. T.)
Companies:	
Armco Steel Corporation:	
Sheffield Steel Corporation	36,000
Atlantic Steel Company	5,580
Bethlehem Steel Corporation:	
Bethlehem Steel Company	78,000
Bethlehem Pacific Coast Steel Corporation	28,000
TOTAL	106,000
Buffalo Bolt Company	55,200
Colorado Fuel and Iron Corporation	*
Falls Hollow Staybolt Company	600
Igoe Brothers, Inc.	700
Republic Steel Corporation	112,000
Ulster Iron Works	700
United States Steel Corporation:	
Tennessee Coal, Iron and Railroad Co.	21,600
GRAND TOTAL	338,380

* Included in capacity of track spikes.

Plain and Galvanized Wire

	Annual Capacity (N. T.)	
	Plain	Galvanized
Companies:		
Allegheny Ludlum Steel Corporation	*	.....
Alloy Metal Wire Company	3,500	.....
American Chain & Cable Company	95,000	25,000
Angell Nail & Chaplet Company	15,000	.....
Armco Steel Corporation	18,000	.....
Sheffield Steel Corporation	197,400	64,000
TOTAL	215,400	64,000
Atlantic Steel Company	87,600	30,660
Atlantic Wire Company	24,000	3,500
Bethlehem Steel Corporation:		
Bethlehem Steel Company	478,000	125,000
Bethlehem Pacific Coast Steel Corporation	20,000	.....
TOTAL	498,000	125,000
Buffalo Bolt Company	24,000	.....
Chicago Steel & Wire Company	23,000	2,500
Colorado Fuel and Iron Corporation	256,400	55,500
California Wire Cloth Corporation	21,870	.....
TOTAL	278,270	55,500
Continental Steel Corporation	150,000	60,000
Copperweld Steel Company	(a) 72,000	.....
Crucible Steel Company of America	15,600	.....
Cuyahoga Steel & Wire Company	18,000	.....
Davis Wire & Cable Corporation, K. H.	4,000	700
Driscoll Wire Company	12,000	500
Driver Company, Wilbur B.	2,000	.....
Ford Motor Company	52,000	.....
Igoe Brothers, Inc.	24,500	.....
Joslyn Manufacturing & Supply Company	2,000	.....
Jones & Laughlin Steel Corporation	235,000	68,400
Keystone Steel & Wire Company	240,000	132,000
Mid-States Steel & Wire Company	100,000	47,000
TOTAL	340,000	179,000
Laclede Steel Company	77,000	10,000
Macwhyte Company	12,000	1,000
Madison Wire Company, Inc.	8,700	.....
National-Standard Company	24,840	6,300
New England High Carbon Wire Company	10,000	.....
Nichols Wire & Aluminum Company	45,000	13,500
Northwestern Steel & Wire Company	252,000	170,000
Pittsburgh Steel Company	324,000	100,000
Johnson Steel & Wire Company	32,000	.....
TOTAL	356,000	100,000
Portsmouth Steel Corporation	141,200	110,000
Prentiss & Company, Geo. W.	5,000	.....
Republic Steel Corporation	348,000	100,000
Roebling's Sons Company, John A.	135,200	35,000
Seneca Wire & Mfg. Company	15,000	1,000
Spencer Wire Company	3,400	.....
Thompson Wire Company	12,000	.....
Union Wire Rope Corporation	35,000	5,000
United States Steel Corporation:		
American Steel & Wire Company	1,651,420	490,330
Columbia Steel Company	123,610	27,080
Tennessee Coal, Iron & Railroad Company	170,600	75,100
TOTAL	1,945,630	592,510
Universal-Cyclops Steel Corporation	6,000	.....
Washburn Wire Company	11,000	.....
Webb Wire Works	500	.....
Western Automatic Machine Screw Company	12,000	.....
Wickwire Brothers, Inc.	35,000	8,000
Wilson Steel & Wire Company	40,000	8,000
Wright Steel & Wire Company, G. F.	12,000	3,000
Youngstown Sheet and Tube Company	72,000	24,000
GRAND TOTAL	5,805,340	1,802,070

(a) Includes steel and copper.
* Included in capacity of cold finished bars.

Wire Products

	Annual Capacity (N. T.)			
	Nails and staples	Barbed	Woven fence	Bale ties
Companies:				
American Chain & Cable Company, Inc.	.....	600	.....	.....
Angell Nail & Chaplet Company	12,000	.....	.....	.....
Armco Steel Corporation:				
Sheffield Steel Corporation	50,900	21,000	29,000	10,000
Atlantic Steel Company	42,900	13,140	35,040	6,100
Bethlehem Steel Corporation:				
Bethlehem Steel Company	83,000	22,000	18,000	17,000
Colorado Fuel & Iron Corporation	55,000	32,400	18,000	14,400
California Wire Cloth Corporation	.....	1,500	.....	1,500
TOTAL	55,000	33,900	18,000	15,900
Continental Steel Corporation	51,000	31,000	54,000	.....
Copperweld Steel Company	.....	175	.....	.....
Davis Wire & Cable Corporation, K. H.	.....	.....	.....	450
Igoe Brothers, Inc.	2,500	.....	.....	.....
Jones & Laughlin Steel Corporation	66,000	36,000	14,400	.....
Keystone Steel & Wire Company	54,000	48,000	240,000	.....
Mid-States Steel Wire Company	12,000	10,000	20,000	5,500
TOTAL	66,000	58,000	260,000	5,500
Nichols Wire & Aluminum Company	15,450	16,500	15,000	11,100
Northwestern Steel & Wire Company	40,800	26,400	126,000	32,400
Pittsburgh Steel Company	44,300	20,000	89,000	.....
Portsmouth Steel Corporation	30,000	24,000	70,000	5,000
Republic Steel Corporation	113,000	35,000	41,000	13,000
United States Steel Corporation:				
American Steel and Wire Company	326,315	186,220	212,330	25,380
Columbia Steel Company	52,950	4,190	7,660	3,450
Tennessee Coal, Iron and Railroad Co.	81,700	32,900	81,700	13,400
TOTAL	460,965	223,310	301,690	42,230
Wickwire Brothers, Inc.	7,325	850	.....	.....
Wilson Steel & Wire Company	20,000	.....	.....	4,200
Youngstown Sheet and Tube Company	18,000	.....	.....	.....
GRAND TOTAL	1,179,140	561,875	1,071,130	162,880

Rails

	Annual Capacity (N. T.)	
	60 lbs. or less per yard	Standard (over 60 lbs. per yard)
Companies:		
Bethlehem Steel Corporation:		
Bethlehem Steel Company	32,400	630,000
Colorado Fuel and Iron Corporation	9,600	475,000
Inland Steel Company	.....	125,000
Sweet's Steel Company	30,000	.....
United States Steel Corporation:		
Carnegie-Illinois Steel Corporation	132,200	986,600
National Tube Company	.....	19,000
Tennessee Coal, Iron and Railroad Co.	3,600	470,000
TOTAL	135,800	1,475,600
West Virginia Steel and Manufacturing Co.	85,000	.....
GRAND TOTAL	292,800	2,705,600

Hoops, Cotton Ties, Baling Bands

	Annual capacity (N. T.)
Companies:	
Atlantic Steel Company	18,400
Connors Steel Company	7,600
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	32,400
Tennessee Coal, Iron and Railroad Co.	49,900
TOTAL	82,300
GRAND TOTAL	108,300

Wheels and Axles—Rolled

	Annual capacity (N. T.)
Companies:	
Armco Steel Corporation	54,000
Baldwin Locomotive Works	47,750
Bethlehem Steel Corporation:	
Bethlehem Steel Company	132,000
Edgewater Steel Company	27,000
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	143,300
TOTAL	404,050

Joint or Splice Bars and Tie Plates

	Annual Capacity (N. T.)
Companies:	
Bethlehem Steel Corporation:	
Bethlehem Steel Company	148,600
Bethlehem Pacific Coast Steel Corporation	12,000
TOTAL	160,600
Colorado Fuel and Iron Corporation	152,000
Inland Steel Company	40,000
National Steel Corporation:	
Weirton Steel Company	(a)
Poor & Company	12,000
Portsmouth Steel Corporation	72,000
Republic Steel Corporation	162,000
Tredegar Company	11,200
United States Steel Corporation:	
Carnegie-Illinois Steel Corporation	276,600
Columbia Steel Company	90,000
National Tube Company	1,000
Tennessee Coal, Iron and Railroad Co.	166,600
TOTAL	534,200
West Virginia Steel and Manufacturing Co.	10,000
GRAND TOTAL	1,154,000

(a) Included in capacity of heavy structural shapes.

Track Spikes

	Annual capacity (N. T.)
Companies:	
Ames & Company, Inc. W.	18,000
Armco Steel Corporation:	
Sheffield Steel Corporation	24,000
Bethlehem Steel Corporation:	
Bethlehem Steel Company	48,000
Bethlehem Pacific Coast Steel Corporation	6,000
TOTAL	54,000
Colorado Fuel and Iron Corporation	30,000
Inland Steel Company	24,000
Jones & Laughlin Steel Corporation	36,000
National Steel Corporation:	
Weirton Steel Company	6,000
Republic Steel Corporation	33,000
Tredegar Company	12,000
United States Steel Corporation:	
Tennessee Coal, Iron and Railroad Co.	30,000
Youngstown Sheet and Tube Company	31,200
GRAND TOTAL	298,200

Canadian Statistics

THE Canadian steel industry continues to expand. During the past ten years four blast furnaces, eight open hearths and 13 electric furnaces have been added so that Canada now has capacity to produce 2,718,000 tons of pig iron annually and 3,694,000 tons of steel ingots.

While the number of furnaces available has shown no change since the wartime peak, existing equipment can turn out somewhat more metal. On Jan. 1, 1945, pig iron capacity was 2,697,800 and that for steel ingots 3,532,750 tons. The Dominion Bridge Co. has abandoned two open hearths but two have been added by the Manitoba Rolling Mill Co. Algoma, Atlas and Dominion Foundries also have increased capacity somewhat.

Coke capacity has increased from 2,180,240 tons on Jan. 1, 1945 to 2,530,240 tons through the addition of 61 ovens by the Steel Co. of Canada.

BLAST FURNACE CAPACITY

	Pig Iron		Ferroalloys		Total annual capacity (N. T.)
	No. of stacks	Annual capacity (N. T.)	No. of stacks	Annual capacity (N. T.)	
Algoma Steel Corporation, Limited	5	1,035,000	.....	.....	1,035,000
Canadian Furnace, Limited	2	182,000	(a)	15,000	197,000
Dominion Steel & Coal Corporation, Ltd.	4	730,000	.....	.....	730,000
Steel Company of Canada, Limited	3	756,000	.....	.....	756,000
Total	14	2,703,000	(a)	15,000	2,718,000

(a) Included under "Pig Iron."

COKE CAPACITY

	No. of ovens	Annual capacity (N. T.)
Algoma Steel Corporation, Limited	244	1,230,000
Dominion Steel & Coal Corporation, Ltd.	180	450,240
Steel Company of Canada, Limited	141	850,000
Total	565	2,530,240

STEEL INGOT CAPACITY

	Open Hearth		Bessemer		Electric		Total annual capacity (N. T.)
	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	No.	Annual capacity (N. T.)	
Kinds:							
Open hearth—Basic	51	3,074,000	..	.....	..	.....	3,074,000
Bessemer	..	.....	(a)1	.....	..	.....	.....
Electric	..	.....	..	.....	23	620,000	620,000
Total	51	3,074,000	1	.....	23	620,000	3,694,000
Steel for castings included above	..	51,600	..	.....	..	47,700	99,300
Companies:							
Algoma Steel Corporation, Ltd.	12	1,000,000	(a)1	.....	..	.....	1,000,000
Atlas Steels, Ltd.	..	.....	..	.....	6	200,000	200,000
Burlington Steel Company, Ltd.	..	.....	..	.....	1	24,000	24,000
Canadian Car & Foundry Company, Ltd.	3	51,600	..	.. ..	2	48,000	99,600
Canadian Tube & Steel Products, Ltd.	..	.....	..	.. ..	3	40,000	40,000
Dominion Foundries and Steel Ltd.	4	200,000	..	.....	6	160,000	360,000
Dominion Steel & Coal Corp., Ltd.	15	722,400	..	.. ..	1	28,000	750,400
Quality Steels (Canada) Ltd.	..	.....	..	.. ..	2	15,000	15,000
Manitoba Rolling Mill Co., Ltd.	4	80,000	..	.....	1	20,000	100,000
Steel Company of Canada, Ltd.	13	1,020,000	..	.	1	85,000	1,105,000
Total	51	3,074,000	(a)1	.....	23	620,000	3,694,000

(a) Used in melting charge for open hearth furnaces.

TOTAL FINISHED STEEL PRODUCTS MADE BY CANADIAN COMPANIES

	Annual capacity (N. T.)
Products:	
Rails—60 lbs. or less per yard	5,600
" —Over 60 lbs. per yard	451,300
Long joint or splice bars and tie plates	71,700
Structural shapes—Heavy	80,450
" " —Light	121,300
Steel piling (Rolled)	16,000
Plates—Sheared	201,800
Plates—Universal	18,000
Sheets—Hot rolled	202,000
Black plate	90,000
Strip for cold reduced black plate and tin plate	200,000
Bars—Other than concrete reinforcement	808,620
" —Concrete reinforcement—New billet	62,500
" " " —Rerolled	14,020
Wire rods	293,000
Ingots, blooms and billets for forging purposes	158,500
All other finished hot rolled	312,410
Total	3,107,200
Companies:	
Algoma Steel Corporation, Limited	755,700
Atlas Steels, Limited	200,000
Burlington Steel Company, Ltd.	41,000
Canadian Car & Foundry Company, Limited	22,000
Canadian Tube & Steel Products, Limited	172,000
Dominion Foundries and Steel, Limited	240,000
Dominion Steel & Coal Corporation, Ltd.	503,300
Manitoba Rolling Mill Company, Limited	47,200
Quality Steels (Canada), Limited	30,000
Steel Company of Canada, Limited	1,076,000
Vancouver Rolling Mills, Ltd.	20,000
Total	3,107,200
Rails—60 lbs. or less per yard:	
Algoma Steel Corporation, Limited	5,600
Rails—Over 60 lbs. per yard:	
Algoma Steel Corporation, Limited	171,300
Dominion Steel & Coal Corporation, Ltd.	280,000
Total	451,300

	Annual capacity (N. T.)
Long Joint or Splice Bars and Tie Plates:	
Algoma Steel Corporation, Limited	13,500
Dominion Steel & Coal Corporation, Ltd.	25,200
Steel Company of Canada, Limited	33,000
Total	71,700
Structural Shapes—Heavy.	
Algoma Steel Corporation, Limited	50,500
Burlington Steel Company, Ltd.	1,950
Canadian Car & Foundry Company, Limited	12,000
Manitoba Rolling Mill Company, Limited	2,000
Steel Company of Canada, Limited	14,000
Total	80,450
Structural Shapes—Light:	
Algoma Steel Corporation, Limited	103,000
Manitoba Rolling Mill Company, Limited	1,800
Steel Company of Canada, Limited	16,500
Total	121,300
Steel Piling (Rolled):	
Algoma Steel Corporation, Limited	16,000
Plates (Sheared and Universal):	
Algoma Steel Corporation, Limited	3,800
Dominion Foundries and Steel, Limited	40,000
Manitoba Rolling Mill Company, Limited	3,000
Steel Company of Canada, Limited	173,000
Total	219,800
Sheets—Hot Rolled:	
Steel Company of Canada, Limited	202,000
Black Plate:	
Steel Company of Canada, Limited	90,000
Strip for Cold Reduced Black Plate and Tin Plate:	
Dominion Foundries and Steel, Limited	200,000

	Annual capacity (N. T.)
Bars—Other than Concrete Reinforcement:	
Algoma Steel Corporation, Limited	24,000
Atlas Steels, Limited	152,000
Burlington Steel Company, Ltd.	23,620
Canadian Car & Foundry Company, Limited	10,000
Canadian Tube & Steel Products, Limited	152,000
Dominion Steel & Coal Corporation, Ltd.	61,600
Manitoba Rolling Mill Company, Limited	29,400
Quality Steels (Canada), Limited	30,000
Steel Company of Canada, Limited	306,000
Vancouver Rolling Mills, Ltd.	20,000
Total	808,620
Bars—Concrete Reinforcement:	
Algoma Steel Corporation, Limited	16,000
Burlington Steel Company, Ltd.	14,020
Canadian Tube & Steel Products, Limited	20,000
Manitoba Rolling Mill Company, Limited	11,000
Steel Company of Canada, Limited	15,500
Total	76,520
Wire Rods:	
Atlas Steels, Limited	24,000
Dominion Steel & Coal Corporation, Ltd.	112,000
Steel Company of Canada, Limited	157,000
Total	293,000
Ingots, Blooms and Billets for Forging Purposes:	
Algoma Steel Corporation, Limited	110,000
Atlas Steels, Limited	24,000
Dominion Steel & Coal Corporation, Ltd.	24,500
Total	158,500
Miscellaneous Finished Hot Rolled Products:	
Algoma Steel Corporation, Limited	242,000
Burlington Steel Company, Ltd.	1,410
Steel Company of Canada, Limited	69,000
Total	312,410

(The foregoing statistics were compiled by the American Iron & Steel Institute and published with its permission)

.A. Steel Industry Grows

Latin American steel shortage, however, likely to last at least through 1949

NBALANCED steel supply-demand tuation in South America likely will ontinue at least through 1949 de- pite marked strides the industry has ade since prewar in modernization nd expansion of production facilities.

The steel industry in Brazil and rgentina is faced with a constant ortage of readily available coal, serious lack of trained personnel nd thousands of miles of ocean be- ween their plants and sources of re- air parts.

These are the opinions of J. R. atterson, vice president, Mackintosh- emphill Co., Pittsburgh, who re- ently completed a 12,000-mile tour f these countries.

Steel industry officials of South merica frequently have been forced rely on their ingenuity and aggres- veness in keeping plants operating extent of improvising with repair quipment of their own design and anufactured in machine shops at lant site.

Located at Monlevade, in the State f Minas Gerais, which is about 300 iles north of Rio de Janeiro, the ompanhia Siderurgica Belgo Mineira as a very modern plant. It rolls nd manufactures wire products, rails nd butt weld pipe.

Ores Are Rich—The iron ore for he blast furnaces of this plant comes rom nearby mountains. Using la- est type American-made shovels, a trip mining operation is being con- ucted. The mountain now being orked is truly an ore hill, for the hovels scoop up loads having 68 70 per cent metallic content!

Belgo Mineira has a plan for lick- g the coal shortage problem. Since oal of the proper qualities for mak- g coke is scarce, charcoal is used large quantities. Day after day harcoal comes to the plant on the acks of natives, strapped to mules, trucks, and by other means of ransportation. Charcoal comes in rom a radius of 100 miles around he plant. This source of supply does ot give complete assurance of free- om from interruption and subse- uent production shut-down. There- ore, the plant has established a ursery for the planting on moun- ain sides of between two and three illion seedlings each year. Most f the seedlings are of eucalyptus rees, which in ten years time mature fficiently to convert into charcoal.

Roll Heavier Rails—Mr. Patterson lso visited the Companhia Siderurgi- a Nacional, Brazil. This plant, locat- ed at Volta Redonda, was partially fi- nanced by the U. S. Export-Import Bank, and was engineered by Arthur G. McKee Co., Cleveland. Its products include rails, shapes and strip. This plant has been in operation for only a short time and has a nucleus of operators from the United States. The rails produced at this mill are playing an important part in remedy- ing a Brazilian transportation bottle- neck.

An interesting feature of these Brazilian steel plants is that both companies were required to build complete towns around the plant site.

Argentine Mills—Steel mill facili- ties in Argentina include S. A. Tal- leres Metalurgicos, San Martin (TAMET), which has an estimated annual rolling capacity of 25,000 tons of rounds and structurals.

Another outstanding steel producer is Acindar Industria Argentina de Aceros S. A., with its plant at Rosar- io. This mill rolls rounds and squares and has estimated annual capacity of 12,000 tons. The Sanches y Gur- mendi mill, with estimated annual capacity of 4000 tons of rounds, and La Cantabrica plant in Buenos Aires are progressive and well managed, ac- cording to Mr. Patterson.

Other steel companies in Argentina include:

Fabrica Militar de Acero, Avellane- da; with annual rolling capacity of 20,000 tons of plates, rounds and squares, and silica manganese steel for springs.

La Cantabrica S. A. Metalurgica, Industrial y Commercial, Haedo F. C. O.; with capacity of 30,000 tons annually for production of rounds, squares and small plates.

Rosati y Cristofaro, Arrecife- F.C.G.A.; estimated capacity of 8000 tons of rounds, squares and small plates.

Torres y Citati, Avellaneda F.C.S.; capacity of 14,000 tons annually of rounds.

Talleres Metalurgicos "Santa Rosa" S.A., Tablada-F.C.O.; capacity 12,000, of rounds, squares, small plates and hoops.

S.I.A.M. Soc. Ind. Americanna Ma- quinarias Di Tella Ltda., Avellaneda- F.C.S.; soon is expected to have a new rolling mill in operation for the production of large diameter pipe. This company recently installed three Yoder resistance weld mills for pro- duction of tubing in range of 1 to 12¾-inch diameter.

The SAIDHYA, Soc. Arge. Ind. de Hierros y Aceros S.A., Lomas de Zamora F.C.S.; produces rounds, squares and hoops; capacity is 7,000 tons per year.

Suc. Juan Pinoges Talleres Met- alurgicos Vulcan, Buenos Aires, pro- duces structural shapes and has a 5,000 ton annual capacity.

Armco International Co. is engi- neering plans for a proposed inte- grated steel plant in Argentina at San Nacilos, about 40 miles from Rosario. Present plans include in- got capacity of about 600,000 tons annually.

Argentina imports about 3 million tons of coal a year. The steel plants usually mix 40 per cent home-mined coal with 60 per cent of the imported fuel.

Mechanization with American-made equipment has boosted South American iron ore production, but hand-labor operations like this are still common

Windows of Washington

By E. C. KREUTZBERG *Washington Editor, STEE*

Hoover Commission's report to Congress on reorganization of government being prepared. Fear group's effort would be wasted relieved by President Truman

WHEN President Truman recently wrote ex-President Hoover a letter expressing the hope that the recommendations of the Hoover Commission on Reorganization of the Executive Branch "will go far to make sound and effective organization possible," widespread fears that the painstaking work of the commission would be wasted were relieved.

The commission now is in the throes of drawing up a report, to be submitted to Congress and the President early next year, which will outline some approaches for introducing greater efficiency in government to replace existing overlapping, duplication and misdirection of effort.

Shaping Reports — Twenty-two task groups, each engaged on a specific study, have been shaping preliminary reports which, when revised and approved by the commission, will be printed in the form of several fat volumes. These, the former President has declared, will not be read by many people.

Some of the recommendations already agreed to by the commission would:

1—Create a "service" agency to be a Presidential staff unit and combine such functions as budgeting, accounting, procurement, etc., and take care of many routine administrative tasks that now take the time of the President.

2—Strengthen the government's career system by providing attractive pay incentives for competent men who now usually get a job in private industry as soon as they have become proficient in the service of the government. The government has a perfectly ghastly employee turnover. During the past three years it hired 2,500,000 people and during the same period 3,500,000 others left the service —making a turnover of 6 million in three years.

3—Strengthen the Labor Department to enable it to perform the many services necessary under today's conditions.

4—Empower each government department or agency to hire its own employees instead of forcing them, as at present, to take on people hired under the existing Civil Service rules.

5—Promote employees from the ranks on the basis of merit; all postmasters, for instance, would be appointed on the basis of past performance and would not be subject to confirmation by the Senate. Also transform the Post Office into a self-sufficient, revolving fund agency which would fix postage rates on the basis of cost of the service. Also give the Post Office authority to decide rates of pay to prevent such situations as that now existing when new employees cannot be hired in sufficient numbers to cope with the ever increasing mail load.

The above is merely a preliminary summation as revealed at Mr. Hoover's latest press conference. Most of the reports of the task groups remain to be acted on.

Export Control Extension Seen

THAT Congress will extend the export control law for an indefinite period is regarded as a foregone conclusion. There is no controversy on this matter, since it generally is regarded as essential and desirable that the President retain his control over exports for as long as the world situation continues in the present uncertainty and confusion.

The export control authority was included by the 80th Congress as section 3 of Public Law 395, which is slated to expire next Feb. 28. This is the same law which authorized voluntary allocations agreements as a means of combatting inflation.

Chances of an extension of the voluntary allocations agreements authority are regarded as slim; instead, it is considered likely the 81st Congress will grant the mandatory standby controls which the President is expected to request in his State of the Union message.

Named Equipment Branch Chief

GEORGE H. Knutsen has been appointed chief of the Machinery & Equipment Branch, Economic Cooperation Administration. He comes to this position from the Army Price Adjustment Board where he has served as vice chairman in charge of renegotiation since 1943. Mr. Knutsen was financial engineer of the Harris Trust Savings Bank of Chicago for several years and had other Midwestern business connections. He also served as a business consultant in New York and had been directo of a number of large public utilit and industrial concerns.

Charles J. Baker, who has been act ing chief of the Machinery & Equip ment Branch, becomes assistant chie

Another Mission to Japan

DR. ZAY JEFFRIES, for many year one of the country's foremost metal lurgical authorities, and vice presi dent, General Electric Co., is a mem ber of a United States scientific mis sion to Japan appointed by the De partment of the Army.

It is to review progress by Japan ese scientists in reorganizing thei national organizations along demo cratic lines. In particular, the missio will observe the program under whic Japanese scientists, approximatel 40,000 in number, will elect 21 members, from all fields of research to form the country's first Nationa Science Council.

The purpose of this council, a contemplated by General MacArthur' SCAP, is to steer Japanese researc along lines that will promote th country's civilian economy, as con trasted with the prewar emphasis o military research. The mission is t arrive in Japan late in November an will remain there until about Dec. 1

Manufacturers' Must Reading

"MUST" reading for manufacturer having a stake in the nation's hous ing activities is the "First Annua Report of the Housing and Home Fi nance Agency." Copies of this 1-inch thick volume may be obtained fro the Superintendent of Document U. S. Government Printing Offic Washington 25, D. C.

It starts out with an overall re port by HHFA Administrator Ray mond M. Foley, followed by separat reports of the activities of the Hom Loan Bank Board, Federal Housin Administration and the Public Hous ing Administration.

Most striking feature of Mr. Foley' report is the statement that it is be coming "more and more apparen that, despite differences of opinio with respect to details of approac and method, there is an ever wide acceptance of certain fundamental about our housing problems:

"That every American famil should have an opportunity for a de cent home in a suitable enviro ment; that substandard housing con ditions threaten the stability of ou

people and our society; that the solution of this problem is a matter of national concern; that to overcome it will require a volume of housing construction ranging from 1,250,000 to 1,500,000 units a year over an extended period, and that it is necessary to provide such housing in types suited to the needs of all our people and at price levels they can afford."

Life in a Sleeping Car

A SPEECH which deserves much wider consideration than the limited audience that heard it afforded, was delivered recently before the Washington Chapter, Association of American Executives, by Leonard W. Trester, chairman, United States Chamber of Commerce's committee on advertising, and director of public policy for the General Outdoor Advertising Co. Inc.

Management has not gotten its story across to the public, he declared. At present, the average industrial worker, housewife, teacher and other types of professional workers have no yardstick to evaluate management, said Mr. Trester.

"They have never experienced our kind of existence," he said. "They know nothing of the hectic hurly-burly, the constant pressure, the heavy responsibilities, the sleepless nights devoted to turning over in the mind various methods of avoiding a layoff or termination.

"They don't know the work and inconveniences involved in attending trade shows, conventions, sales meetings and conferences. To them a constant travel schedule seems luxury."

The logical step is to let workers in for a share of the responsibilities of management "and thus automatically assure a better understanding and appreciation," he said.

Needed are more comprehensive training programs, and the designation of more young executives, moved up from the ranks, to understudy more top jobs.

"They would find," said Mr. Trester, "that life in a sleeping car is not as fascinating, as comfortable, as luxurious as they think."

Study Sub Zero Failures

MECHANICAL properties of steels and aluminum alloys at temperatures as low as minus 320° F are being studied at Case Institute of Technology, Cleveland, at the request of the Office of Naval Research. Data to explain structural failures of steel Liberty ships during the war is being sought by the Navy and the aviation industry is interested in learning how low temperatures affect planes in flights over Arctic regions and at high altitudes.

Domestically, it is hoped that the tests may explain disasters similar to the explosion at East Ohio Gas Co., Cleveland, which involve behavior of metal tanks used for liquid gas storage. The low temperatures for the tests are obtained by forcing liquid nitrogen into the test chamber attached to the testing machine. Pressures up to 10,000 pounds per sq in. can be applied, causing fracture of the test sample.

Work is proceeding on two problems: 1. Finding the properties of metals at low temperatures and determining their strength and toughness, and 2. investigating methods of shaping steel and aluminum alloys at these low temperatures.

HONORED: Incoming and outgoing chairmen of the National Military Establishment's Research & Development Board were honored recently at Washington by Secretary of Defense James V. Forrestal, center. At left is the new chairman, Dr. Karl T. Compton, formerly president of Massachusetts Institute of Technology, and at right is outgoing chairman, Dr. Vannevar Bush. NEA photo

Senate To Get Face-lifting

THE CONTRACT for remodeling the Senate chamber, long held up by the war and by the postwar scarcity of building materials, has been let by Capitol Architect David Lynn to the Consolidated Engineering Co., Baltimore. The work is to cost about $2 million and will be done on a cost-plus-a-fixed-fee basis.

A major feature will be removal of the steel trusses which were installed as an emergency measure to support the roof in 1940 when it was found to be in danger of collapse. A new steel and concrete fireproof roof will be installed and the entire interio remodeled. The work is to be don during such periods as the Congres is not in session and is not slate for completion until the end of 195

A similar remodeling job is in stor for the House chamber which also i disfigured by steel trusses that hol up a weak roof.

To Teach American Way

TO ASSIST the United States in it foreign policy, the U. S. Labor De partment's Bureau of Apprenticeshi has inaugurated a project to exchang persons, knowledge and skills be tween this country and countries wit like objectives and ideals.

By giving these people the op portunity to learn American produc tion methods and to observe hov Americans live during work and i their leisure time, the bureau hope to counteract false propaganda.

Pollsters Tried To Be Too Exac

DESPITE the failure of public opin ion polls to gage the outcome of th presidential election, the science o market research is well grounded an plays an important function in busi ness, according to A. E. Cascino manager of market research for Ben dix Home Appliances Inc., Sout Bend, Ind.

Political pollsters attempted to pro vide too exact percentages, thus get ting beyond the limitations of publi opinion analysis, Mr. Cascino reports

German Ownership

Ruhr industrialists see influence of U. S. election in timing, trend of U.K.-U.S. decision

INFLUENCE of the American Democratic election victory is seen by German businessmen in the recent epoch-making British-U.S. decision to return Ruhr coal and steel industries to private ownership.

Speculation is current as to whether this step would have come as soon or have taken precisely its present direction under a Republican administration. Most controversial point, which may have been handled much differently by Republicans, is the complete abolition of all former steel, coal and electric power firms not at least 50 per cent foreign owned. Small companies, formed on a basis which takes into account economical and geographic considerations, will take over.

Protests Aroused—This provision, of course, has aroused protests from former owners and associates of the old steel companies, but generally the move is hailed as constructive and beneficial. The ruling represents a compromise between British socialization views and American insistence upon free enterprise and absence of monopolistic control. The Americans won their point on deconcentration through the provision for small companies to be established in the steel industry. Incidentally, France also wants deconcentration, and the U.S. hoped this aspect might woo Paris, a wish which hasn't borne fruit yet.

The British, however, scored a point in the provision that the German parliaments, when elected and convened, can decide upon socialization. Consensus is that nationalization very likely could occur. This possibility has clouded Ruhr dreams that the new arrangement would attract sorely-needed foreign capital, particularly from the United States.

Interim Custodians — Until the question of ownership is finally decided upon, three to five German custodians will be named for each new coal corporation. In steel, a custodian association will be appointed by Military Government to administer the entire industry from mining to finished products in the initial stages of reshuffling and liquidation. When the new firms have appeared, smaller custodian boards, as for coal, will take over. The coal industry setup will also be followed in the electric power field where the four largest firms in the Ruhr are affected.

The enthusiasm over the return to German ownership has been tempered somewhat, however, by the continued muddle in the dismantling program. The British, who had agreed to slacken their activities, have stopped tearing down a few second class plants, but their dismantling, for example, of a modern plate mill at Hoerde, near Dortmund, has been accelerated considerably, and the status of the program is cloudy.

Facts for Industry . . .

Malleable Iron Castings

SHIPMENTS of malleable iron castings during September totaled 77,824 short tons, 6 per cent above August shipments of 73,273 tons and 9 per cent higher than the September, 1947, total. For the first 9 months of this year, 694,225 tons were shipped which was 5 per cent higher than the 661,225 tons shipped in the corresponding period of last year. September shipments of castings to outside trades totaled 43,881 tons for 56 per cent of the month's total. New orders booked, less cancellations, for castings for sale to outside trades during September amounted to 31,059 tons, a decrease of 17 per cent from August. *Census Bureau, Commerce Dept.*

Wrought Magnesium

MAGNESIUM wrought products shipments during September totaled 707,000 lb, the highest total in any month since February, 1947, and 42 per cent above the 497,000 lb shipped in August. Shipments for the first 9 months of 1948 at 4,093,000 lb were slightly above the 3,964,000 lb shipped in the same period of 1947. *Census Bureau, Commerce Dept.*

Steel Forgings

SEPTEMBER shipments of commercial steel forgings totaled 120,882 short tons, 9 per cent higher than the 11,097 tons shipped in August and 11 per cent higher than the 108,804 tons shipped in September, 1947. Total shipments for the first 9 months of this year at 1,038,147 tons were 5 per cent higher than the 989,363 tons shipped in the corresponding period of 1947. Unfilled orders for steel forgings on Sept. 30 amounted to 631,000 tons, about the same as orders on the books at the end of August. Drop and upset forgings shipments for the month amounted to 87,075 tons, 10 per cent above August with unfilled orders amounting to 6 months activity at the present rate of shipments. Press and open hammer forgings shipped during September totaling 33,807 tons were 6 per cent higher than the 31,885 tons shipped in August. At the end of September unfilled orders for press and open hammer forgings amounted to 110,000 tons, representing about 3 months backlog. *Census Bureau, Commerce Dept.*

Mechanical Stokers

FACTORY sales of mechanical stokers totaled 14,157 units in September, an increase of 29 per cent over the 10,975 units sold in September and 39 per cent more than sales in September, 1947. Sales of stokers for residential use during the month totaled 12,135, and 874 units were sold for use in small apartment houses and small commercial heating plants. These two types of stokers accounted for 92 per cent of the total sold during the month. *Census Bureau, Commerce Dept.*

Containers and Closures

SHIPMENTS of metal cans in August reached a postwar high of 398,060 short tons and exceeded by 11,000 tons the previous high set in the same month of 1947. August shipments of steel shipping barrels, drums and pails included 2.3 million heavy type steel barrels and drums, 922,000 light type steel barrels and drums, and 5.5 million steel packages, kegs and pails. For all three major types of shipping containers this was a substantial increase over the preceding month. The heavy types were all shipped for sale to the trade and of the total August shipments of 922,463 light type steel barrels and drums, 654,319 were shipped to the trade and the remainder were for use by the producing company or a subsidiary, affiliate or parent company. *Census Bureau, Commerce Dept.*

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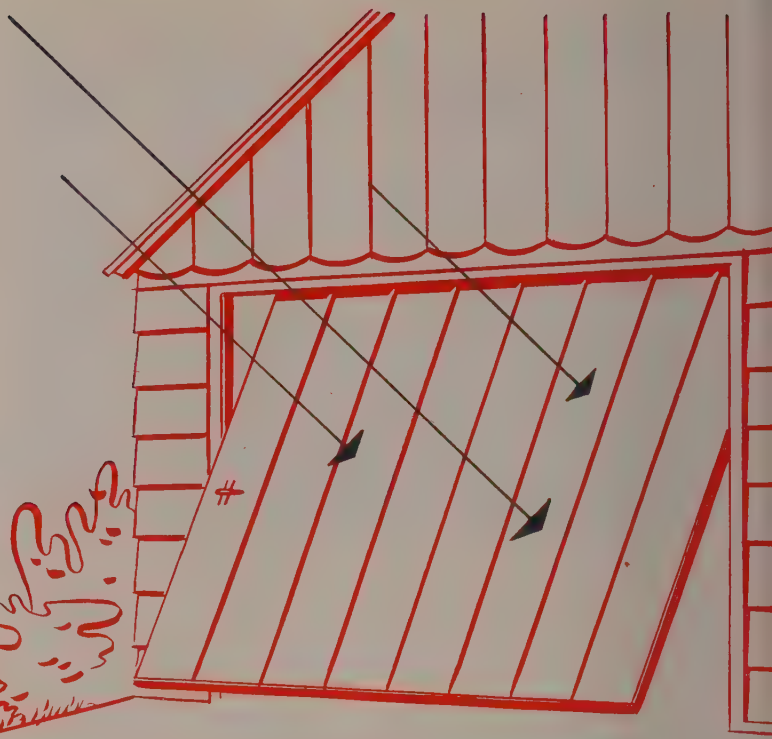

Steel Door Division, Stamping Products & Mfg. Co., Detroi
Michigan, builds its famous Glide-Away overhead typ
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N-A-X HIGH-TENSILE STEEL

The greater strength, excellent weldability, high corrosion-resistance and dent-resistance of N-A-X HIGH-TENSILE make it an ideal steel for garage doors and similar products that must be light yet durable.

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HIGH-TENSILE STEEL

By A. H. ALLEN *Detroit Editor, STEEL*

Mirrors of Motordom

Radioactive isotopes of cobalt and selenium may have important possibilities in industry. Used to test welds, determine height of molten metal in cupola, gage sheet thickness

DETROIT

ALTHOUGH still on an experimental basis, the use of radioactive isotopes of cobalt and selenium, produced from the uranium chain-reacting pile of the Atomic Energy Commission at Oak Ridge, Tenn., looms as having important practical possibilities after five months of tests by the applied physics laboratory of Ford Motor Co. Under direction of Don M. McCutcheon, the laboratory has under investigation the use of these isotopes in material processing, radiography, liquid level indication in foundry cupolas and thickness control in the rolling of sheet steel.

First shipments of cobalt 60 and selenium 75 isotopes were received last May and they are stored in a so-called "hot lab," a double-room laboratory vault completely underground and built of thick concrete on the banks of the Rouge river. Research thus far has been confined largely to study of the use of radiation emitted by the two isotopes, classed as gamma-ray emitters, in tasks which are similar to those which might be handled by x-ray machines. Inflexibility of x-ray equipment and the greater penetrating ability of isotope emissions lend peculiar advantages to the latter which are confined to small capsules and are very readily transportable.

Cobalt 60, a radioactive material with a half-life of 5.3 years, is reported suitable for radiographic inspection of metals and, since it has a penetrating power equivalent to that of a 2000-kilovolt x-ray tube is ideal for examination of thick sections. Selenium 75 has a relatively short half-life of 120 days and a 250-kilovolt x-ray equivalent. It is best adapted to immediate use on relatively thin sections.

Tests Welds—One important use of radioactive isotopes is the periodic checks which can be made of welds in high-pressure steam lines. A radiograph of each weld may be recorded on x-ray film and any defective welds readily detected and repaired.

Ford's production foundry long has sought a practical means for determining the height of molten metal inside cupolas, as an aid to closer control of metal quality and more efficient overall operation. Research engineers have been using isotopes as a possible means of sending rays through the cupola. As the radioactive source and a Geiger counter tube are moved up or down the opposite side of a cupola simultaneously, the intensity of gamma radiation reaching the counter varies according to whether the rays pass through the molten metal or the gas and charged raw material above it. The point at which the radiation count changes indicates the height of the surface of molten metal. Tests so far appear to indicate practical values in the method and an automatic, permanently mounted installation is in process of development.

Measures Sheet Thickness—In the rolling mill, experiments have been conducted with selenium 75 isotope to measure and control sheet steel thickness as it is rolled continuously. Data show that in applying radioactive isotopes for measurement of material as thin as sheet steel, those that are beta-ray emitters of high energy would serve the purpose better than gamma-ray emitters like selenium 75 since thickness sensitivity of beta radiations is much greater. At present, consideration is being given to a practical installation in the rolling mill which would make use of beta radiations for thickness control.

Mr. McCutcheon, incidentally, presented the first paper on the subject to come from an automotive laboratory, at a recent meeting of the Society for Nondestructive Testing during the National Metal Congress in Philadelphia.

Automobile Production

Passenger Cars and Trucks—U. S. and Canada

	1948	1947
January	422,236	366,205
February	399,471	393,663
March	519,154	443,588
April	462,323	445,137
May	359,996	404,191
June	454,401	421,466
July	489,736	399,456
August	478,146	364,478
September	437,181	444,501
October	505,651	461,536
10 mos.	4,528,295	4,144,221
November		417,493
December		492,109
12 mos.		5,055,284

Estimate for week ended:

	1948	1947
Nov. 6	118,229	106,651
Nov. 13	116,029	110,663
Nov. 20	120,592	115,197
Nov. 27	90,000	82,932

Estimates by Ward's Automotive Reports

Organize New Company

THREE well-known local architects and engineers, Fred A. Boddy, Max W. Benjamin and Frederick H. Potz, have organized a new company, Boddy-Benjamin Associates Inc., and have taken over an entire floor in a downtown building to house their architectural, structural, mechanical, electrical and power departments. Mr. Boddy was vice president and chief engineer of H. E. Beyster Corp. here from 1941 to the present and prior to that was for ten years assistant chief mechanical engineer for the Fisher Body Division of General Motors, and for three years associated with Merritt-Chapman & Scott, New York engineers. Mr. Benjamin is a specialist in power house design, serving for 19 years with Detroit Edison Co. and at one time head of the steam power department of the Beyster corporation. Mr. Potz was architect-in-charge for Albert Kahn Inc. for 22 years and is a former head of the architectural department of Beyster.

Nash Makes Road Service Trucks

NASH is now manufacturing in limited quantity road service trucks for exclusive use by its dealers. None of the new wreckers or truck chassis will be available for domestic sale, postwar plans for entering the U. S. truck market having been indefinitely postponed because large-scale truck manufacture would divert steel needed more critically for passenger cars.

Truck chassis without bodies have been in limited production for

FIRST SHIPMENT: From the new plant of Harry Ferguson Inc., Detroit, goes the first shipment of tractors. Called the world's most modern tractor assembly plant, the factory is producing 30 units a day and is expected to reach 100 daily by mid-December. Peak capacity is 500 tractors a day on two 8-hour shifts. NEA photo

export over the past year or more. The service truck is equipped with a wrecker power crane mounted in a heavy welded steel body, with ample space for field service equipment.

Plans Four New Models

HENRY J. KAISER told the American Finance Conference in Chicago recently that Kaiser-Frazer is gearing up to produce four new models in the coming year, and now has hand-built metal models of a car in the Chevrolet-Ford-Plymouth price class about ready for tooling. Anticipated introduction date of the latter is 1950, "or when steel permits." He gave a hint of what the lower-price model will be when he said "the rock-bottom bargain in roomy but lighter autos will come when we find really new ways of manufacturing cars. Today's automobile has 20,000 or more parts. I believe the day will come, and it is not too far away, when the parts will be reduced to a fraction of that number."

Mr. Kaiser continues exceptionally bullish over the industrial future of the U. S. and believes capacity for building just about everything should be expanded at once. However, he notes, this cannot be done without greatly accelerated capital investment in industry—possibly $75 billion or more. At present the incentive for investment in building essential increased facilities has been stifled, so Mr. Kaiser would like to see restitution of the wartime law permitting the write-off of capital investments in a minimum of five years instead of the present 20 years. And he would also like the congress and administration to establish rebates on income surtaxes for savings a taxpayer puts back into capital investment, a tax incentive reform proposed by economist Sumner Slichter. Briefly it is suggested that on the part of income which is saved, taxpayers could claim a rebate of one-third of the surtax on the amount saved.

On the question of expansion of steel capacity, he quoted Louis H. Bean, government economist, who believes the U. S. ought to have 110,000,000 tons of melting capacity "to make up for facilities not built during the depression of the 1930s. The economist's ideas are based on the belief that while "the steel industry held capacity back, human beings kept on propagating and, somehow, we did not arrange to hold the population back."

Builds Tractor-Crane

A REAR tractor-crane, embodying differential motion between the lift links and the crane frame, is now in production for Harry Ferguson Inc., tractor builder which currently is assembling tractor units in a new Detroit plant. The crane has a rectangular telescopic boom which can be lengthened for lighter loads and shortened for heavier ones. Fully extended, it will lift 350 pounds before a hydraulic safety valve starts to function automatically, bypassing oil to prevent tipping the tractor. When the boom is retracted it will lift a maximum of 650 pounds. Design of the crane brings the load closer to the tractor when fully lifted which, combined with the differential motion of the lifting mechanism, prevents lifting an excessively heavy load more than a short distance off the ground.

Buick, Cadillac Prices Up

INCREASES in prices of 1949 Buick and Cadillac models amount to about $100, a little more than 5 per cent in the case of Buick and a little less in the case of Cadillac. Buick's Dynaflow transmission continues to be priced at $200, optional on the Super series but standard on the Roadmaster, bringing the factory list price on a 4-door sedan in the latter type to $2585, to which must be added taxes, freight, dealer preparation and accessories. Thus the delivered price becomes well over $3000.

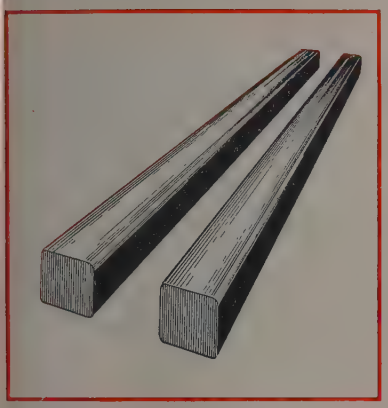
No explanation was offered for the necessity of increasing prices on these 1949 models, although the obvious reason is higher costs. Even in the past month or two there have been numerous boosts in prices quoted by suppliers of parts, some of the order of 15 per cent. A further hint may be read into the speech which Walter Reuther of the UAW CIO gave in Portland, Oreg., recently before a civic group, in which he said the auto workers would have to move for a fourth-round wage increase next spring. He even went so far as to mention the ludicrous figure of 43 cents an hour, but added settlements might be worked out on the basis of 15 cents an hour.

Some observers are of the opinion the economic weather in the U. S. by spring will be such as to preclude any increase at all; time will tell whether this is just wishful thinking. At any rate, new car prices are still going up, and it could be partly in anticipation of forking over another wage boost to the UAW next year.

Morley Quits Tucker

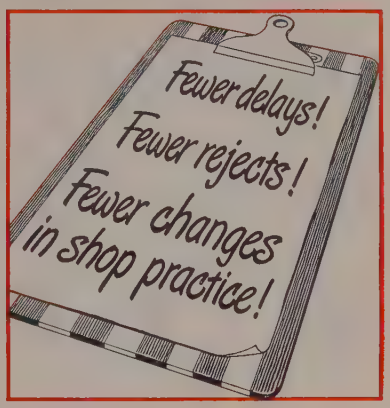
HERBERT MORLEY, in charge of materials procurement for Tucker Corp., Chicago, since its organization and one of the last remaining original Tucker directors and officers, has resigned as vice president and director, charging in a public letter to the board of directors that Preston T. Tucker, president, exerts "dominating influence" in the company and has withheld information concerning the corporation's financial status, even from his own directors. Mr. Morley remains a defendant in a stockholders' suit for an accounting of the corporation's assets and appointment of a receiver, which is scheduled for hearing before a federal judge Dec. 17.

Why you're sure of UNIFORMITY with TIMKEN® forging bars



1. *TIMKEN FORGING BARS* have uniformly high quality, uniform forgeability, and uniform response to heat treatment.

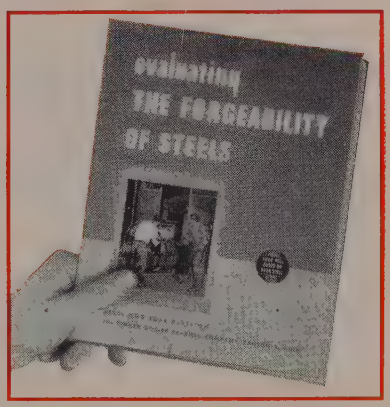
2. *THIS MEANS* more consistent quality and better performance in your finished forgings, greater customer satisfaction.



3. *PRODUCTION COSTS ARE CUT* too—because delays, rejects and shop-practice changes are all reduced.

4. *THIS OUTSTANDING UNIFORMITY* is a result of the Timken Company's complete quality control—from melting through final inspection.

5. *AND HIGHEST QUALITY* is assured by precise control methods, specialized skill and years of leadership in alloy steel research.



6. *FOR HELP WITH YOUR PROBLEMS,* call in our Technical Staff. And for data on the forgeability of steels, write for this booklet.

Write to The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH

Specialists in alloy steel—including hot rolled and cold finished alloy steel bars—a complete range of stainless, graphitic and standard tool analyses—and alloy and stainless seamless steel tubing

Yale & Towne Plays Host

Firm's Stamford plant is scene of annual visitation by tool engineers

STRESSING the importance of tool engineering in modern industry, Yale & Towne Mfg. Co. executives described manufacturing and distribution methods of the Stamford, Conn., division to plant superintendents, engineers and master mechanics from Fairfield county who gathered in Stamford recently for the annual visitation of the American Society of Tool Engineers.

Tours of the plant conducted by Yale & Towne engineers afforded members of the society an opportunity to view first hand the various methods employed in the manufacture of Yale products, which at this facility include locks, builders' hardware, door closers and tri-rotor pumps.

A technical dinner-meeting followed the afternoon session. Speaking on "Manufacturing Methods," Harold E. Nagle, Stamford general superintendent, described the continuous study conducted to improve Yale & Towne product design and manufacturing methods. He used as an example the pin-tumbler cylinder lock, pointing out the recent advances made in its manufacture through the use of specially designed machinery.

Yale & Towne's Stamford, Conn., unit was the scene recently for a plant visitation by the Fairfield County Chapter of American Society of Tool Engineers. Above, a group listens to Fred E. Karl, assistant to the superintendent of Yale & Towne's press, rod and forge shops, far right, as he explains the operation of a large press used for the complete manufacture of escutcheon plates

GE Buys Illinois Plant

GENERAL ELECTRIC CO. has purchased a surplus plant east of DeKalb, Ill., from War Assets Administration for $475,000.

The property, which includes 11 acres of land and a main factory building with a floor area of 160,000 sq ft, has been occupied by GE under lease since February, 1946. The company will continue to use the plant for the manufacture of fractional horsepower motors.

The plant and a 42-acre adjacent airport were operated during the war by Interstate Aircraft & Engineering Corp. for assembling and testing airplanes.

Westinghouse To Lease Plant

WESTINGHOUSE Electric Corp. is scheduled to take over by lease on Dec. 31 the one-time Pratt & Whitney plant in Kansas City, Mo. Approximately 5000 will be employed at the plant by the end of 1949.

Westinghouse will begin installing heavy machine tools and production facilities at the unit after Jan. 1. Production of gas turbines is expected to begin before the end of 1949, until which time the operating force will be schooled. Training program for personnel will be in progress by Mar. 1.

Virginia Steel Expands in Alabama

VIRGINIA Steel Co., Richmond, Va., steel fabricating firm, is constructing a new plant at 1007 37th Place North, Birmingham, which will double the present area of its Alabama branch.

Approximately 20,000 sq ft will be under roof, with additional working space of 10,000 sq ft under the outside crane runway.

Completion is scheduled for January, 1949. H. C. Major is manager of the plant.

Manhattan Marks 55th Year

MANHATTAN Rubber Division of Raybestos-Manhattan Inc., Passaic, N. J., recently completed its 55th year.

Manhattan traces its ancestry to the first charter rubber company in America, Roxbury Rubber Co., Boston. It was organized in 1833, six years before Goodyear used sulphur to vulcanize rubber. In 1845 the Roxbury company was reorganized by Henry Fowle Durant and John Haven Cheever who called the firm Boston Belting Co. Two relatives of Mr. Durant, Frank C. Jones and Col. Arthur F. Townsend, were placed i the company. These two men, an George Woffenden, then considere top-ranking rubber expert, founde Manhattan Rubber Mfg. Co. in 189 and built a plant in Passaic. M Jones was president until 1903 whe he retired in favor of Col. Townsend who served as president until 192 when the company merged to form Raybestos-Manhattan Inc. Toda Manhattan specializes in mechanica rubber goods. Other divisions of Ray bestos-Manhattan are Raybestos Di vision, U. S. Asbestos Division an General Asbestos & Rubber Division

MIT Plans $20 Million Program

NEW laboratory building for metal processing studies is among th projects proposed in a $20 millio development program planned a Massachusetts Institute of Technol ogy, Cambridge, Mass.

Half of this $20 million is require for endowment and unrestricte funds; the balance will be used fo new facilities and equipment. Th proposed $1 million metals process ing laboratory will be a 4-story struc ture containing about 70,000 sq f It will include as one wing a build ing now used for foundry, weldin and forging, which will be drastical ly remodeled. One of the principa units of this laboratory will be a enlarged machine tool facility.

Briefs . . . .

Paragraph mentions of developments of interest and significance within the metalworking industry

Midvale Co., Nicetown, Philadelphia, has appointed John C. Riley Co., Houston, Tex., as its district sales representative in Louisiana, Arkansas, Oklahoma and Texas.

—o—

Westinghouse Electric Corp., Pittsburgh, is conducting a seven-month course in electrical transmission, distribution and generation procedures for young electric power utilities engineers employed in the utility industry.

—o—

Allis-Chalmers Mfg. Co., Milwaukee, has purchased the Gadsden, Ala., ordnance plant for $575,800.

—o—

Columbia Radiator Co., McKeesport, Pa., has changed its name to Columbia Foundry Co. The firm is withdrawing entirely from the heating boiler and radiator business and will devote its facilities to the manufacture of production gray iron castings.

—o—

Vacuum Cleaner Manufacturers' Association, Cleveland, reports factory sales of standard size household vacuum cleaners in October totaled 281,573 units, slightly more than in September but 21.4 per cent below sales for October, 1947.

—o—

Trent Tube Mfg. Co., East Troy, Wis., has changed its name to Trent Tube Co. Firm is a subsidiary of Crucible Steel Co. of America.

—o—

B. F. Goodrich Chemical Co., Cleveland, subsidiary of B. F. Goodrich Co., announces plasticizers for vinyl and other synthetic resins will be manufactured in substantial volume. Production facilities are now under construction as part of the $3 million Avon Lake, O., expansion announced earlier. Operations are scheduled for the second quarter of 1949.

—o—

Northrop Aircraft Inc., Hawthorne, Calif., reports that its order backlog has steadily climbed and now totals over $100 million. Hawthorne employment may reach 10,000 soon.

—o—

Reynolds Metals Co., Richmond, Va., will move its No. 7 plant at Louisville, Ky., to Lister Hill, Ala., shortly after Jan. 1. The plant, an extrusion operation, will be moved because of insufficient space and prohibitive freight rates between Alabama and Kentucky.

—o—

Dominion Enginering Works Ltd., Montreal, Canada, will produce 1000-hp diesel engines for the diesel-electric switching locomotives manufactured by Montreal Locomotive Works Ltd. for Canadian and foreign railways. This engine was developed and produced in the U. S. by American Locomotive Co.

—o—

Rheem Mfg. Co., San Francisco, reports production of steel shipping containers is under way at a new plant in Amsterdam, Holland, operated by Evenblij, Rheem's Dutch subsidiary.

—o—

Cornell-Dubilier Electric Corp., South Plainfield, N. J., manufacturer of electrical apparatus, has purchased Faradon Capacitor Division from Radio Corp. of America. All Faradon equipment has been moved to Cornell-Dubilier plants to produce capacitors for broadcast stations and electronic specialties. Company will continue all lines formerly made by RCA.

—o—

Sterling Mfg. Co., Cleveland, instrument maker, has appointed Charles Segel Co., Boston, its New England representative.

—o—

Department of the Navy has awarded a $2,800,000 contract to Bendix Radio Division of Bendix Aviation Corp. for construction of 12 ground control approach units, radar system used to guide planes through fog or heavy weather to the airport runway. Units will be built in Baltimore.

—o—

General Electric Co., Schenectady, N. Y., has appointed W. P. & R. S. Mars Co., Duluth, as a distributor of GE arc welding equipment and electrodes in the Duluth area.

—o—

Office of Technical Services, Department of Commerce, announces a summary report on electrical motors, generators and transformers based upon a comprehensive review of industrial practice in Germany is now available.

—o—

Iles & Larkin, Cleveland, manufacturers' representative, has been dissolved and succeeded by Iles Power Control Co.

—o—

Crosley Motors Inc., Cincinnati, reports sales of its small cars will soon reach 60,000 on a national basis.

—o—

Cornell University, Ithaca, N. Y., has consolidated parallel departments in two engineering divisions into a new Department of Engineering Materials. Units were formerly in the School of Civil Engineering and in Sibley School of Mechanical Engineering.

—o—

Inland Steel Co., Chicago, reports its Indiana Harbor, Ind., works has been awarded a Certificate of Appreciation by the American Legion for its record in employment of disabled veterans of World Wars I and II.

—o—

Babcock & Wilcox Co., New York, has released a 16 mm educational film, "Steam for Power," which depicts the development and application of modern steam boilers. Requests for the film, which will be available free of charge on Dec. 1, should be made to the Advertising Division, Babcock & Wilcox Co., 85 Liberty St., New York 6.

—o—

Association of Steel Distributors Inc., New York, announces that an organizational meeting of the new South-West Chapter was recently held. Plans are being made for the organization of other regional chapters.

—o—

Federal Power Commission reports that Texas Eastern Transmission Corp.'s request for authorization to construct and operate additional natural gas facilities on its Big Inch lines is now pending before the commission. The proposed construction, which received temporary FPC authorization May 28, 1948, would increase delivery capacity of the company's lines by 75 million cu ft a day.

—o—

Associated Industries of Massachusetts has given the grand trophy award to Westinghouse Electric Corp. for 1947's best annual report to employees.

—o—

W. & L. E. Gurley, Troy, N. Y., manufacturer of engineering and scientific instruments, has appointed A. Lietz Co., Los Angeles and San Francisco, as sales agent in California, Oregon, Nevada, Arizona, New Mexico and El Paso, Tex.

—o—

Geometric Tool Co., New Haven, Conn., manufacturer of machinery and tools for cutting screw threads, has appointed Wright Industrial Supply Co., Toledo, O., as distributor for northwestern Ohio. Geometric is a division of Greenfield Tap & Die Corp.

—o—

War Assets Administration is offering a Chicago plant for sale, subject to lease expiring Dec. 14, 1950, held by Western Electric Co.

The Business Trend

INDUSTRIAL activity continued high and steady in the week ended Nov. 20 with STEEL's production index at 176 per cent (preliminary) of the 1936-1939 average. Soft spots, buyer resistance and caution are reported in some industries but they are not evident in the steel industry.

STEEL—Production of steel for ingots and castings was at 99 per cent of capacity during the week ended Nov. 20, marking the fourth consecutive week in which the industry has operated at this lofty level. Steelworks operations reached 95 per cent of capacity during the week ended Aug. 21 and have not gone below this point since then.

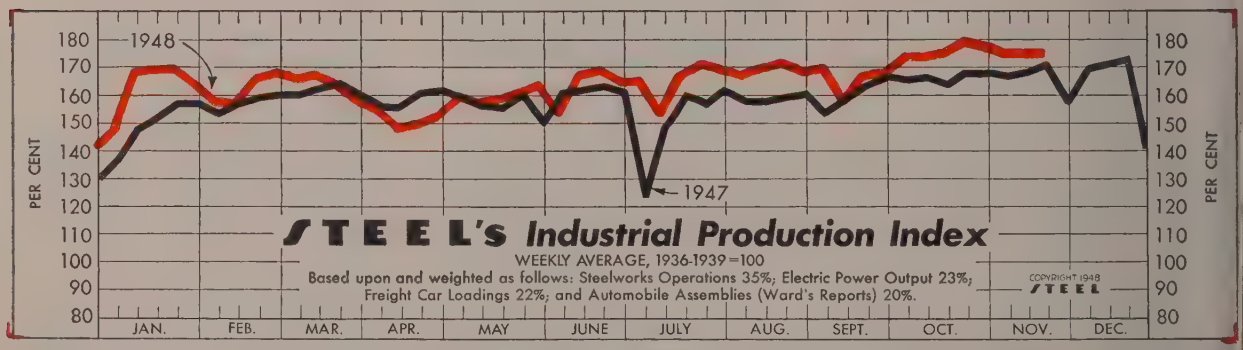
AUTOMOBILES—From the strike-reduced output of the preceding week automobile builders boosted production more than 4500 units in the week ended Nov. 20, pushing total outturn to 120,592 cars and trucks. Production increases were also registered by the builders who are gradually getting back into high gear after model changeovers.

COAL—Stockpiles of bituminous coal are at a 5-year high despite a lag both in current production and in aggregate for the year in comparison with 1947. During the week ended Nov. 13 output of bituminous coal was 11,920,000 net tons compared with 12,685,000 tons for the same week last year, and the total for the year to the reporting date was more than 30.5 million tons below total for the corresponding period in 1947.

CONSTRUCTION—Contracts awarded for building and heavy engineering projects in the 37 states east of the Rocky mountains totaled $778.6 million in October, reflecting a gain of 2 per cent over September and a decline of 2 per cent from October of last year. These awards brought the cumulative total for the first ten months of the year to more than $8.1 billion, 27 per cent higher than last year.

RAILROADS—New freight cars on order by all railroads and private carlines as of Nov. 1, totaled 111,405 compared with 126,213 a year ago, according to the Association of American Railroads. Of the total, class 1 railroads had 102,220 freight cars on order as follows: 20,568 box, 46,211 hopper, 22,681 gondolas, 4449 flat cars, 6935 refrigerator cars, 700 stock and 676 miscellaneous freight cars.

PRICES—Beginning with the Dec. 6 issue of STEEL, the Bureau of Labor Statistics price index for all commodities will be based on a 115 commodity selected sample and will not be comparable with the old index carried in The Business Trend to and including the current issue. Comparison will be made, however, to previous week, month ago and year ago figures based on the new index. Instead of an index for manufactured products, a new index for metals and metal products will be used. In addition, The Business Trend statistics will include a new index STEEL has compiled concerning nonferrous metals prices. The new index is based on the average weekly prices for the years 1936-1939 and weighted in relation to the tonnage importance of these metals.



Index (chart above): Week ended Nov. 20 (preliminary) 176 Previous Week 176 Month Ago 179 Year Ago 171

BAROMETERS of BUSINESS

INDUSTRY

	Latest Period*	Prior Week	Month Ago	Year Ago
Steel Ingot Output (per cent of capacity)†	99.0	99.0	98.5	96.5
Electric Power Distributed (million kilowatt hours)	5,573‡	5,571	5,539	5,180
Bituminous Coal Production (daily av.—1000 tons)	1,970	1,707	2,000	2,114
Petroleum Production (daily av.—1000 bbl.)	5,610‡	5,626	5,596	5,275
Construction Volume (ENR—Unit $1,000,000)	$123.2	$137.8	$129.0	$100.9
Automobile and Truck Output (Ward's—number units)	120,592	116,029	123,067	115,197

* Dates on request. † 1948 weekly capacity is 1,802,476 net tons. 1947 weekly capacity was 1,749,928 net tons. ‡ Preliminary.

TRADE

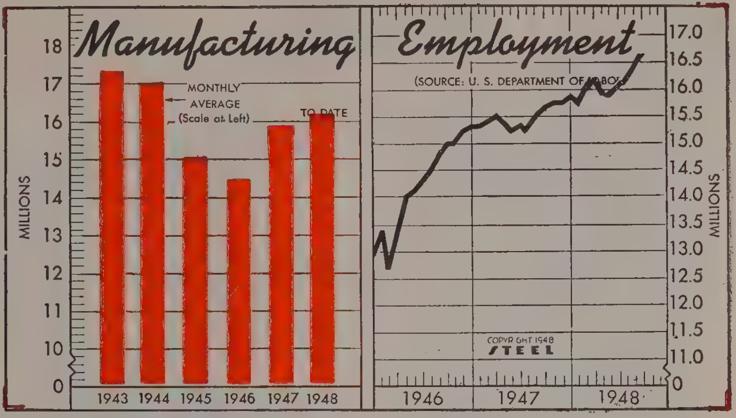
Freight Carloadings (unit—1000 cars)	860†	872	928	903
Business Failures (Dun & Bradstreet, number)	92†	96	124	79
Money in Circulation (in millions of dollars)‡	$28,215	$28,337	$28,157	$28,595
Department Store Sales (changes from like wk. a yr. ago)‡	−9%	−8%	+11%	+11%

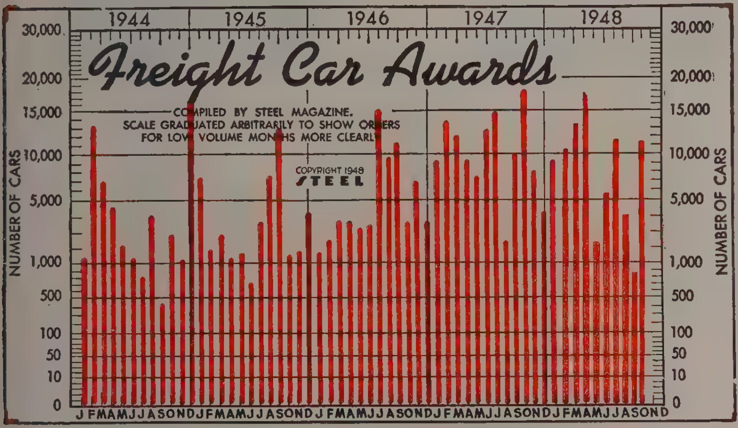
† Preliminary. ‡ Federal Reserve Board.

Factory Employment

(000 omitted)

	1948	1947	1946
January	16,267	15,372	13,499
February	16,183	15,475	12,751
March	16,269	15,510	13,433
April	15,950	15,429	14,054
May	15,904	15,569	14,159
June	16,115	15,672	14,371
July	16,158	15,580	14,526
August	16,451	15,962	14,876
September	16,638	16,175	15,035
October	.....	16,209	15,064
November	.....	16,256	15,271
December	.....	16,354	15,348
Monthly Ave.	.....	15,794	14,365





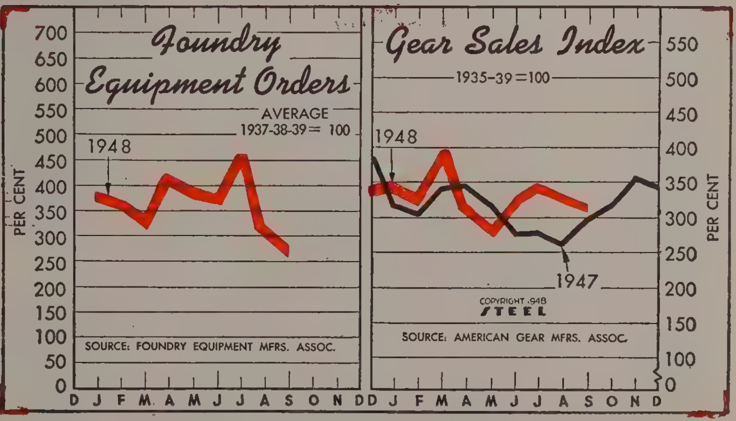
Freight Car Awards

	†*1948	*1947	*1946	1945	1944
Jan.	9,213	9,222	1,481	7,200	1,020
Feb.	10,698	13 724	2,328	1,750	13,240
Mar.	13,427	12,048	3,512	2,500	6,510
Apr.	17,227	9,186	3,564	1,120	4,519
May	2,230	7,389	2,900	1,526	1,952
June	5,868	12,784	3,335	670	1,150
July	11,923	14,840	14,836	3,500	795
Aug.	3,788	2,359	9,527	7,240	3,900
Sept.	840	9,917	11,102	12,840	400
Oct.	11,431	17,737	3,407	1,320	2,425
Nov.	....	8,079	6,690	1,650	1,065
Dec.	....	4,030	3,441	4,116	16,245
Total	....	121,315	66,723	45,432	53,221

* American Railway Car Institute.
† Preliminary.

	Foundry Equipment Orders*	Gear Sales	
	Index (1937-38-39=100)	Index (1935-39=100)	
	1948	1948	1947
January	380.9	346.8	317.0
February	367.3	324.4	303.0
March	326.2	389.8	342.9
April	412.0	320.9	346.2
May	388.5	283.6	317.2
June	376.8	324.1	278.0
July	456.3	348.4	278.5
August	324.7	335.6	261.6
September	273.5	320.4	297.7
October	....	....	317.7
November	....	....	356.9
December	....	....	343.6

* By foundry trades only.



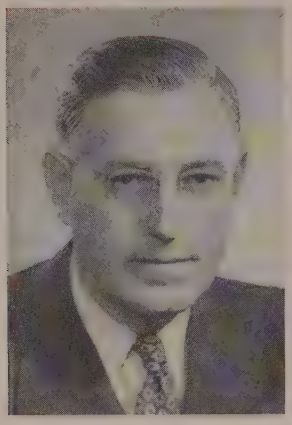
FINANCE	Latest Period*	Prior Week	Month Ago	Year Ago
Bank Clearings (Dun & Bradstreet—millions)	$13,418	$13,350	$15,582	$16,009
Federal Gross Debt (billions)	$252.5	$252.4	$252.3	$258.4
Bond Volume, NYSE (millions)	$16.3	$17.8	$19.8	$25.7
Stocks Sales, NYSE (thousands)	5,176	6,972	6,933	4,990
Loans and Investments (billions)†	$62.4	$62.2	$62.1	$64.9
United States Gov't. Obligations Held (millions)†	$33,319	$33,268	$33,022	$37,834

† Member banks, Federal Reserve System.

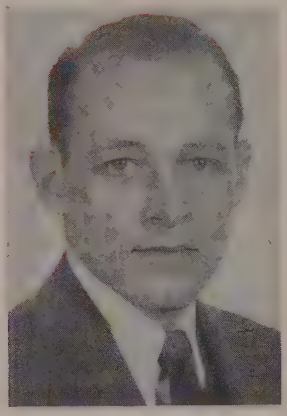
PRICES	Latest Period*	Prior Week	Month Ago	Year Ago
STEEL's composite finished steel price average	$95.05	$95.05	$95.05	$76.09
All Commodities†	162.6	162.7	164.8	158.5
Industrial Raw Materials†	175.4	175.1	177.2	175.8
Manufactured Products†	157.8	158.1	160.6	151.7

† Bureau of Labor Statistics Index, 1926=100.

Men of Industry



ROY E. SMITH



DR. FRED E. KENDALL

RUSSELL MASSEY

Roy E. Smith has been elected president, Stefco Steel Co. Inc., Michigan City, Ind., a manufacturing company where steel products are fabricated, including prefabricated steel buildings for industrial and commercial use, furnace and heating parts, bottle dispensing machines and contract manufacturing of special products. Mr. Smith had been president of Bennett Industries Inc. for the past two years, spent four years as vice president of Kelly Steel Works Inc., also 14 years as division manager and general manager of American Rolling Mill Co. subsidiaries.

—o—

Robert T. Maynard has been appointed export manager, Thew Shovel Co., Lorain, O. He has been transferred from the post of district sales manager, Mid-Atlantic territory, with headquarters in Washington. From 1939 until early 1948, Mr. Maynard served as export manager for Osgood Co. and General Excavator Co., Marion, O.

—o—

Interlake Iron Corp., Cleveland, has elected **Leigh Willard** to the newly created position of board chairman, effective Jan. 1. Mr. Willard has been president of the company and is succeeded in that position by **E. L. Clair,** executive vice president. Mr. Willard will continue active in the affairs of the company but will now have more time to devote to his many other interests. He is president, Olga Coal Co., operating unit of Carter Coal Co., and a director of Allis-Chalmers Mfg. Co. Mr. Clair has been with Interlake and predecessor companies 28 years.

—o—

M. B. Speer & Co., Pittsburgh, has announced appointment of **Henry Gross** as manager of a new department of the company which will handle nonferrous metals. Mr. Gross formerly was purchasing agent and assistant secretary of Duquesne Smelting Co., division of American Metal Co. Ltd., and was prior to that assistant purchasing agent of Federated Metals Division of American Smelting & Refining Co.

—o—

International Rustproof Corp., Cleveland, announces appointment of **Dr. Fred E. Kendall** as vice president, director of research and sales. He served as chief chemist in charge of electrochemical research for Republic Steel Corp., Cleveland, for a number of years, and more recently as director of research for Master Builders Co., Cleveland.

—o—

James C. Rankin has been promoted to executive assistant, Glidden Co., Cleveland. Formerly manager of specialty sales, Mr. Rankin joined Glidden Co. in 1942. He became director of the company's retail stores and, during the war, served in the Navy. Upon his return from service, he was made assistant to the manager of industrial and transportation sales.

—o—

Acme Pattern & Machine Co. Inc., designer and builder of tools, dies and special machinery at Buffalo, announces appointment of **Richard Hoagland** as chief engineer of automatic arc welding applications. Mr. Hoagland joined the company after being associated with Westinghouse Electric Corp. for the past seven years, where he was metallurgist of the Canton Naval Ordnance Plant, and more recently equipment engineer in the arc welding department at the Buffalo Motor Division. He was also associated with Republic Steel Corp., where he participated in melting and rolling research of electric furnace steels.

—o—

Atlas Steels Ltd., Welland, Canada, announces appointment of **Russell Massey** as superintendent of rolling mills. He joined the Atlas organization in 1941 as supervisor of the 26-in. and 22-in. mills, a position he has held since that time. Mr. Massey entered the steel business in 1932 with Weirton Steel Co., Weirton, W. Va., holding various positions in its blooming, structural, strip and rail mills.

—o—

Machinery Division, Dravo Corp., Pittsburgh, has opened a branch office in Baltimore. **C. P. Cryer,** formerly of the firm's Philadelphia office, has been placed in charge of the new office. The Baltimore office represents De Laval Steam Turbine Co., Askania Regulator Co., and Davis Engineering Co. In addition it handles Dravo "counterflo" heaters and crane cab coolers, engineering construction of power plants and fabricated power piping.

—o—

Dr. William M. Murray Jr., acting director, Southern Research Institute, Birmingham, has been elected director of the institute.

—o—

Arthur K. Watson has been appointed assistant to the manager, World Trade Division, International Business Machines Corp., New York. He was previously a sales representative in the New York office. He recently returned from a three months' visit to the company's plants and offices in

THE FASTEST THING IN FASTENINGS

TINNERMAN
Speed Nut
SAVINGS STORIES

"BENDIX Saves 8 ways with SPEED NUTS*"

SAYS MR. WALLACE F. OLIVER,
Vice-President and Director of Engineering, Bendix Home Appliances, Inc.

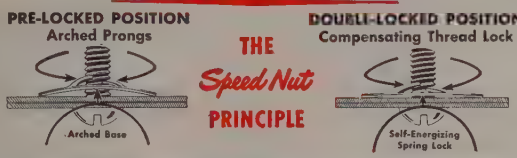
"WE HAVE LEARNED from experience that SPEED NUTS provide eight important savings in the production, assembly and servicing of Bendix home appliances . . .

- SPEED NUTS save time by simplifying our design problems . . .
- reduce our total assembly time because they start easier, pull down faster and do not have to be held with a wrench . . .
- provide blind location attachments that take less time, less skill . . .
- save us the investment in expensive welding and riveting equipment . . .
- reduce our materials costs by performing multiple fastening functions that eliminate lock-washers and other parts . . .
- save weight through use of lighter materials without sacrificing strength or rigidity . . .
- minimize shipping damage to our products by protecting fastening against vibration loosening . . .
- and . . . save our servicing time because they will not "freeze" to bolts or screws exposed to corrosion.

"In the blueprint stage . . . that's where we always specify SPEED NUTS. We take full advantage of Tinnerman engineering service, too, making certain that we achieve the utmost in assembly efficiency."

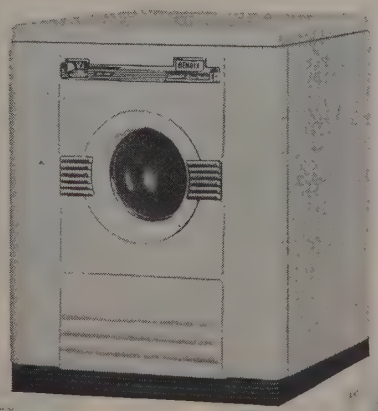
It's possible that SPEED NUTS can provide valuable savings in your assembly operations. Call your Tinnerman representative for details on our Fastening Analysis Service—he's listed in major city telephone directories. Tinnerman Products, Inc., Cleveland 13, Ohio.

In Canada: Dominion Fasteners Limited, Hamilton.
In England: Simmonds Aerocessories, Ltd., Treforest.
In France: Aerocessoires Simmonds, S. A. Paris.



Eleven SPEED NUTS, 7 Latch-type and 4 "U"-type, are attached to washer front panel at high rate of 65 panels per hour. Blind location attachment of door sections and lower front panels are then accomplished with ease and speed on the moving assembly line.

Right in the storage rack—that's where "U"-type SPEED NUTS are quickly and easily slipped on by hand, ready for vibration-proof attachment of these top panels of the Gyramatic Washer.



SPEED NUTS were specified for the new Bendix Gyramatic Washer while it was still in the blueprint stage . . . the result: maximum assembly savings.

TINNERMAN Speed Nuts*
*Trade Mark Reg. U. S. Pat. Off.

MORE THAN 4000 SHAPES AND SIZES

England, France, Italy, Belgium, Switzerland, Holland, Denmark, Norway, Sweden and Spain. He represented the World Trade Division on a visit to Germany with other company executives.

—o—

Transfers involving three members of the sales department at New Departure Division, Bristol, Conn., General Motors Corp., are as follows: **Ralph O. Wirtemburg** moves from the position of eastern regional sales manager to special assignments originating from the general sales manager's office. **James P. Gillilan,** manager of the department's New York zone office, succeeds Mr. Wirtemburg as eastern regional manager. **Clifton S. Fleet** fills the vacancy created by Mr. Gillilan's transfer.

—o—

W. Robert Melville has retired as manager of the Buffalo branch, National Lead Co. The Buffalo, Cleveland and Pittsburgh branches of the company are being combined under **Ellis Busse,** branch manager at Cleveland.

—o—

Flint Structural Steel Co., Flint, Mich., announces election of the following officers: **A. W. Anderson,** chairman of the board; **E. M. Christensen,** president and treasurer; **A. W. Sumney,** vice president; and **D. M. Clinton,** secretary.

—o—

Frank R. Sowers, who joined Willard Storage Battery Co., Cleveland, in 1916, has been elected to a newly created office of vice president in charge of sales. His entire business career has been spent with Willard.

—o—

L. G. Maechtlen has been named general sales manager of Square D Co., Detroit, in the Western Division. He joined the company as an engineer in 1926, and during World War II was manager of the Los Angeles plant, where he supervised production and sales in southern California. Following the war, he supervised design and construction of the new plant on Valley Blvd., in Los Angeles, and has been works manager since its completion in 1946.

—o—

Frank W. Eichman has been appointed sales manager of the Philadelphia plant of Joseph T. Ryerson & Son Inc., steel distributor. His entire business career has been spent with the Ryerson organization. He started at the New York plant in 1922, was appointed sales representative in the New York area in 1932, and in 1938 moved to the Philadelphia plant, where he continued in the capacity of sales representative.

—o—

Ralph V. Hunt has resigned as vice president, controller and director of Douglas Aircraft Co. Inc., Santa Monica, Calif., effective Nov. 30. **Harry W. Strangman** has been elected treasurer of the company, and a director to succeed Mr. Hunt.

—o—

Robert McFarlane has been named general manager, Gibbs Mfg. & Research Corp., Janesville, Wis. For 13 years he was associated with Koppers Co., and in 1942 joined B. F. Goodrich Co. where he engaged in the synthetic rubber program during the war. For the past two years he has been manager of Goodrich's plant at Borger, Tex.

—o—

James D. Allan, former Cleveland sales manager, Pratt & Whitney Division, Niles-Bement-Pond Co., West Hartford, Conn., has been transferred to West Hartford as manager of domestic machine tool sales. He joined Pratt & Whitney in 1923 at its Philadelphia office, and in 1925 transferred to its Cleveland machine tool sales staff and became Cleveland district manager in 1927. **Frank W. Schreiner** has been appointed to succeed Mr. Allan at Cleveland. He has been a member of the Cleveland sales staff for 21 years.

—o—

Arthur R. Collins has been appointed general manager of Division III, Stewart-Warner Corp.'s "South Wind" Heating Equipment Division at Indianapolis. Mr. Collins joined the South Wind Division as an engineer in 1942, and has headed its manufacturing and engineering activities for the past 16 months. **E. G. Fossum,** since early in 1948 an assistant to **F. A. Hiter,** senior vice president of Stewart-Warner, acting as liaison in all matters pertaining to operations of the Indianapolis Division, has been appointed assistant to the president of the corporation. He has been a member of Stewart-Warner organization since 1926.

—o—

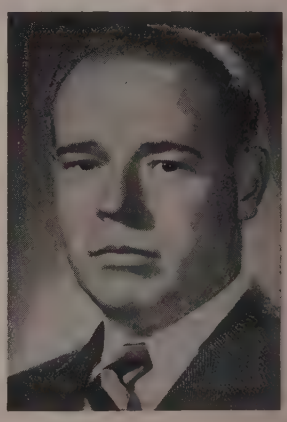
Nelson C. Walker has been appointed assistant district manager at the Berwick, Pa., plant of American Car & Foundry Co. From 1936 to 1940 Mr. Walker was chief industrial engineer and assistant to the factory manager of Glenn L. Martin Co. For the next five years he was manager of U. S. Time Corp., then Waterbury Clock Co. In 1945 Mr. Walker became chief engineer and assistant to vice president of manufacturing of Noma Electric Corp., Kearny, N. J. He subsequently was vice president and general manager and later president of United Tank Corp., which post he held prior to joining American Car & Foundry Co.

—o—

Leonard G. Taggart has been appointed director of purchasing for Sylvania Electric Products Inc., New York. Mr. Taggart, who was formerly manager of purchasing for the

L. G. MAECHTLEN

JAMES D. ALLAN



LEONARD G. TAGGART

- Continuous atmospheric control
- Precision heat regulation
- Low gas consumption

Swindell Bottom Entry Malleable Furnaces, with specialized design and construction features, provide outstandingly efficient performance in malleable castings production. *May we have your inquiry?*

SWINDELL

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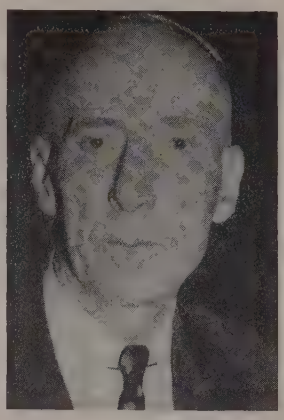
SWINDELL-DRESSLER *Corporation*

DESIGNERS AND BUILDERS OF MODERN INDUSTRIAL FURNACES

PITTSBURGH, PA.

E. R. GILMORE



C. B. JOHNSON

ALLYN E. HARPER

company's Radio Tube Division, will establish purchasing policy and coordinate purchasing activities of the Radio Tube, Lamp, Electronics, Fixture, Tungsten and Chemicals Divisions, and the Wabash Corp., a subsidiary. Mr. Taggart joined the company in 1933.

—o—

Rockwell Mfg. Co., Pittsburgh, has named **E. R. Gilmore** as director of research and **C. B. Johnson** as chief engineer for its Pittsburgh Equitable Meter Division. Mr. Johnson started with Pittsburgh Equitable Meter Co. as a product engineer in 1929 and in 1941 went to Pittsburgh-DuBois Co. as chief engineer. In 1944 he returned to Rockwell as chief engineer, Nordstrom Valve Division. Mr. Gilmore was formerly chief engineer, Meter & Regulator Divisions of the company. He joined the Pittsburgh Equitable Meter Co. in 1936, and has guided the engineering and development of many new products, among them the new Rockwell-Emco domestic gas meter.

—o—

William V. Burley has been appointed general manager, Magnus Metal Division, National Lead Co., New York. He will supervise and direct all phases of the Magnus manufacturing, administrative and selling activities. He succeeds **W. H. Croft,** retired. Mr. Burley, who is a vice president and director of National Lead, joined the company in 1922 as a member of the comptroller's staff. In 1925 he was placed in charge of the Mueller Brass Foundry Co., St. Louis, as secretary and treasurer. In 1936 he became comptroller, Magnus Metal Co., and two years later, assistant general manager, Magnus Metal Division, continuing as comptroller. He became a manager of the St. Louis branch in 1939 and a director of National Lead Co. the following year. Mr. Burley was elected a vice president in 1943, and became a member of the executive committee July, 1948.

—o—

H. S. Klingenstein has resigned as executive vice president and director of Duquesne Smelting Corp., Pittsburgh. He has been connected with that company for the past six years. Prior to that time he was active in various capacities with American Metal Co. Ltd., New York.

—o—

Lewis E. Young, consulting mining engineer, and former vice president, Pittsburgh Coal Co., Pittsburgh, has been elected president of the American Institute of Mining & Metallurgical Engineers for 1949. Two vice presidents elected are: **Augustus B. Kinzel,** president, Union Carbide & Carbon Research Laboratories, New York; and **Philip Kraft,** vice president, Newmont Mining Corp., New York. Four new directors elected are: **William J. Coulter,** general manager, Climax Molybdenum Co., Denver; **James L. Head,** mining engineer, Anaconda Copper Mining Co., New York; **W. M. Peirce,** chief, Research Division, New Jersey Zinc Co., Palmerton, Pa.; and **George P. Swift,** consulting engineer, Waltham, Mass.

—o—

E. P. Walters has been promoted by Chicago Vitreous Enamel Product Co., Cicero, Ill., to district manager of the St. Louis district to cover the Southwest territory. He first joined the company in 1935. During the war he was in charge of a machine shop, production control, and became a personnel manager in the company's war program. Since the end of the war he has spent his time in Chicago for the company as a service man until his recent appointment.

—o—

Ernest Wenigman, former manager, Stinson Division at Wayne, Mich., Consolidated Vultee Aircraft Corp., has been appointed works manager of the company's San Diego, Calif., plant.

—o—

Oliver Iron & Steel Corp., Pittsburgh, announces appointment of **Allyn E. Harper** as chief plant engineer. He formerly was plant engineer, General Cable Corp., St. Louis. Mr. Harper's first association was with L. Eugene Robinson as a designer of industrial plants. He later was engaged in various engineering capacities with Allis-Chalmers Mfg. Co., and Central Illinois Public Service Co., and was vice president and chief engineer, Coal Carbonizing Co., St. Louis. More recently he was general superintendent, F. H. McGraw Co., and completed the engineering and installation of the equipment for the Lincoln and Mercury assembly plant in St. Louis.

—o—

A. Edward Jennens has been recently appointed district manager for Cardox Corp., Chicago, with headquarters in the Stephenson Bldg., Detroit. Until recently Mr. Jennens had been connected with Smith, Hinchman, Grylls, architects of Detroit. He succeeds **Albert C. Wallich,** retired from the Cardox organization to enter business for himself.

—o—

William J. Hall has been appointed production manager, Ivanhoe Division, Reliance Electric & Engineering Co., Cleveland. He has been night superintendent of that division for the past two years.

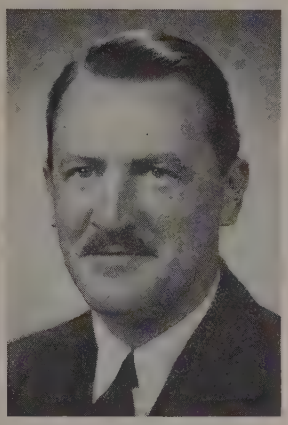
—o—

Maj. Gen. Levin H. Campbell, former chief of ordnance, United States Army, has been elected a director of American Steel Foundries, Chicago.

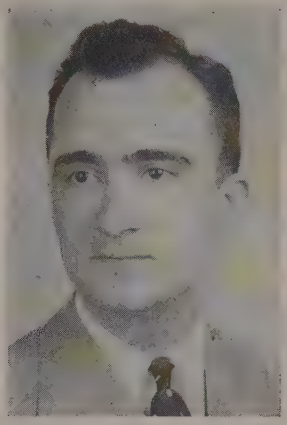
—o—

Wendell W. Anderson has been elected a member of the board of directors, Crucible Steel Co. of America, New York. He is president and

R. C. BROWN
Appointed director of sales, Foote Bros. Gear & Machine Corp., Chicago. Noted in STEEL, Nov. 22 issue, p. 60



E. S. SENSENDERFER
Appointed advertising manager, Bonney Forge & Tool Works, Allentown, Pa. Noted in STEEL, Nov. 22 issue, p. 60



HOWARD M. DAWSON
Elected president, Jessop Steel International Corp., New York. Noted in STEEL, Nov. 22 issue, p. 60

treasurer of Bundy Tubing Co., Detroit, Detroit Trust Co., and of the Automotive & Aviation Parts Manufacturers of Detroit.

—o—

McMillan Robinson has been appointed sales manager for Metal Products Division, Koppers Co. Inc., at Baltimore. He resigned as vice president, Ocean City Mfg. Co., Philadelphia, to accept the Koppers position.

—o—

Oliver Iron & Steel Corp., Pittsburgh, announces the following appointments: **William N. Boyd,** superintendent, industrial fasteners manufacturing; **Martin Schmunk,** chief inspector; **Albert M. Schmidt,** assistant chief inspector; **William G. Lehrman,** superintendent, receiving warehousing and shipping; and **Howard F. Kunkle,** superintendent, maintenance and die shop.

—o—

Oscar A. Lenna has been elected president and general manager, Blackstone Corp., parent concern of Jamestown Metal Equipment Co., Jamestown, N. Y.; Jamestown Malleable Iron Corp. and Blackstone Washing Machine Division. Other officers elected are: **A. E. Schoebeck,** executive vice president; **Gustaf A. Lawson,** vice president in charge of the Automotive Division; **Reginald Lenna,** vice president in charge of operations; **J. M. Wicht,** vice president in charge of Home Appliances Mfg. Division; **Harry A. Lenna,** secretary and treasurer, and **Ross W. Alden,** assistant secretary-treasurer.

—o—

J. Sigmund Berlie will be in charge of a new office recently opened by Metalwash Machinery Corp. at 1130 West Olympic Blvd., Los Angeles. Mr. Berlie has had many years of experience in the metalworking industries, especially in washing and pickling of metal parts.

OBITUARIES . . .

Dr. F. G. Cottrell, 71, died in Berkeley, Calif., Nov. 16. He invented the electrical precipitator unit for cleaning blast furnace gas. Dr. Cottrell had been director of the United States Bureau of Mines, and in 1933 was chief consultant chemist for the Tennessee Valley Authority.

—o—

Joseph C. Regan, 76, retired president and general manager, E. Horton & Sons Inc., machine and tool manufacturer, Windsor Locks, Conn., died Nov. 18.

—o—

Chester C. Miller, 60, retired vice president, Apex Steel Co., Los Angeles, died Nov. 16.

—o—

J. Earl Peterson, 57, vice president, director and secretary of the former General Machinery Corp., now known as Lima-Hamilton Corp., Hamilton, O., died Nov. 19.

—o—

John S. McKee, former works manager and member of the board of directors, Electric Controller & Mfg. Co., Cleveland, died in Galveston, Tex., Nov. 15. He was with the Electric Controller & Mfg. Co. from 1903 until 1943, when he moved to Texas.

—o—

John M. Prowell, 58, president and owner, Avondale Stove & Foundry Co., Birmingham, died there Nov. 15 after a month's illness.

—o—

Robert B. Stamps, 38, electrical engineer, was instantly killed Nov. 16 when he was struck by a bar while working on a generator at the Birmingham plant of Republic Steel Corp.

—o—

Thomas J. McNichols, formerly executive vice president, National Grave Vault Co., Galion, O., a subsidiary of Central Ohio Steel Products Co., died Nov. 16 in Canton, O., after a brief illness. He had been with the National company since 1913.

—o—

Frank J. Black, 76, an authority on railroad car wheels, axles and forgings, died Nov. 17. He was superintendent of Carnegie-Illinois Steel Co., Pittsburgh, for 30 years, and had been vice president, Crucible Electric Steel Co.

—o—

O. C. George, 74, Canonsburg, Pa., formerly chief draftsman at Fort Pitt Bridge Works, Pittsburgh, died Nov. 15. He retired two years ago after serving the company for 45 years.

—o—

C. Edward Price, 43, president, Peninsular Grinding Wheel Co., Detroit, died in that city, Nov. 22. He had been associated with the company since 1936, serving as sales manager and vice president until becoming president two years ago.

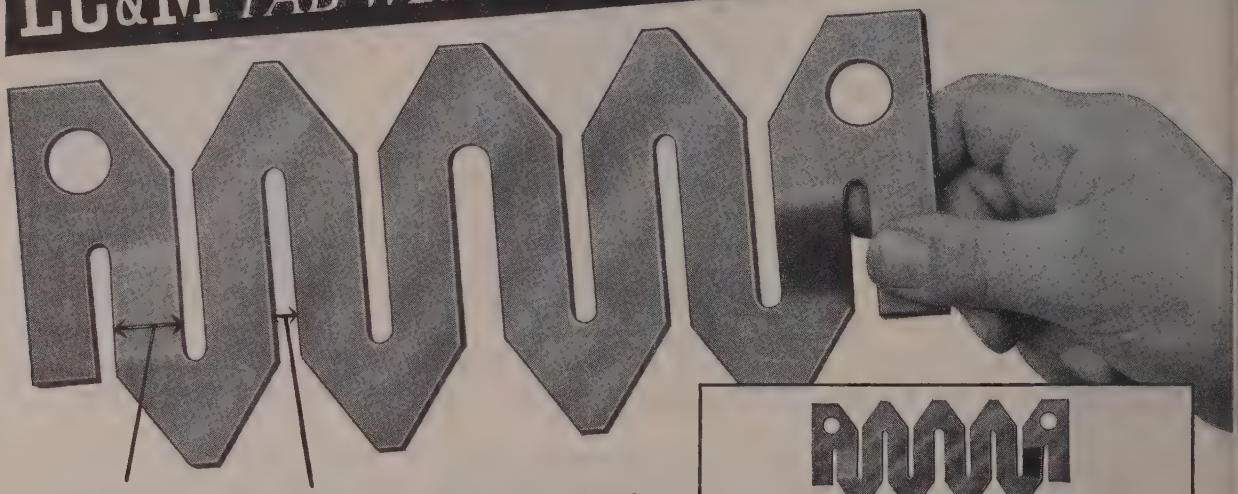
—o—

Horace C. Maddux, 48, sales manager, Trailer Axle Division, Timken-Detroit Axle Co., Detroit, and active with that company for 25 years, died Nov. 21 while on a business trip in Cincinnati.

—o—

Meyer Rabinovitz, 69, co-owner of Sheboygan Iron & Metal Co., Sheboygan, Wis., died Nov. 18.

EC&M *TAB WELD GRIDS* designed for efficiency



Widths and Openings matched to ampere and radiation needs . .

Here's why these new *Tab-Weld* Resistors are unmatched in meeting the requirements of control service for crane and mill duty:

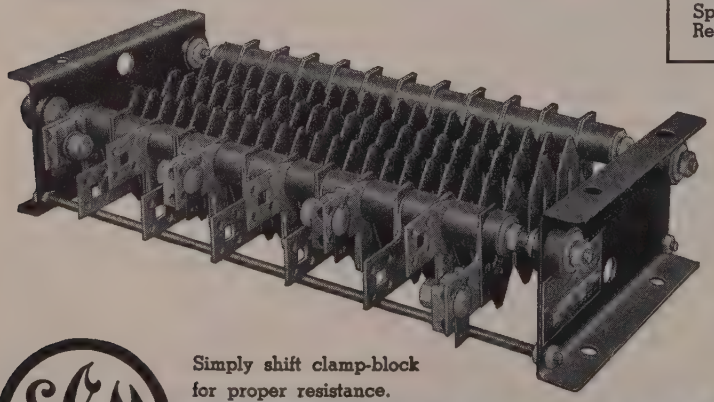
(1) Metal area and cooling surfaces are accurately proportioned for uniform temperature rise throughout each grid.

(2) Spot-welding of mated grid-ends and of taps to grid-ends eliminate burning at the grid eyes and at the taps.

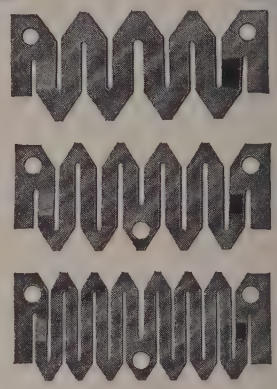
(3) Standard sections have the same size grid throughout the section.

(4) The large number of taps makes internal tap-shifting unnecessary.

For reduced maintenance where maintenance can be easily overlooked, switch to EC&M *Tab-Weld* PLATE RESISTORS.



Simply shift clamp-block for proper resistance.



3 x 3 = 9 grid sizes for wide horsepower range

EC&M *Tab-Weld* GRIDS are stamped from corrosion-resistant steel in the above three designs. Three different gauges of steel per design give only nine grid sizes. Assembled in *"standard"* sections, these EC&M *Tab-Weld* Resistors are available in capacities up to 150 amperes without internal paralleling. For larger capacities, external paralleling of complete sections is simplified by the standard tap arrangement of each section.

Specify EC&M Bulletin 942 *Tab-Weld* Plate Resistors for Crane and Mill Auxiliary Control.

Specify EC&M Bulletin 942 Tab-Weld Plate Resistors for Crane and Mill Auxiliary Control

THE ELECTRIC CONTROLLER & MFG. CO.

2698 EAST 79TH STREET • CLEVELAND 4, OHIO

Engineering News . . . AT A GLANCE

SPEEDED-UP BEARING TREATING—Use of a synchronized conveying system in the plant of International Harvester Co., Chicago, now enables the company to heat treat ball bearing race rings on a continuous basis. Rings are carried in wire baskets at hand level from the screw machines to the heat treating furnace by overhead conveyor. It is an easy matter to switch off a basket of machined rings to the furnace loading platform. After rings are loaded on the furnace belt, no further handling is involved until they emerge hardened, washed and tempered and ready for finish grinding.

EXPANDS TOOL LIFE— Tool life in machining soft gray iron castings produced by the Central Foundry Division, General Motors, was increased some four times according to James H. Smith, general manager. Principal factor behind the increase is the use of a technique of continuous annealing the castings, an operation utilized for the past year and a half. The castings formerly slowed machining rates because of hard spots impossible to remove by previous methods.

HARNESSES RARE GAS— Krypton, rare atmospheric gas, recently was successfully harnessed by engineers of Duro Test Corp., North Bergen, N. J., for commercial use in a new 25-watt fluorescent lamp which is reported to be 50 per cent more efficient in light output than those using conventional light sources. The gas occurs in the air about one part in one million parts—a fact that prevented commercial use due to the high cost of extracting it from the atmosphere. It is a finer or "purer" gas and hence permits lower starting or "striking" voltage as well as increased light output.

GRADE CONFIRMER—Spectroscopic methods are used at the Wood Works of Carnegie-Illinois Steel Corp., Pittsburgh, in making rapid differentiations between various grades of stainless steels and detecting residual elements in the metals. Procedure is stated to be valuable in making accurate qualitative determination, especially in identifying stainless grades that owe their identity to one or more modifying elements. Another application of the instrument is to confirm the grade of hot-rolled plate as received at the mill before any further processing. This is said to avoid costly processing of the wrong grade to sheet product.

TESTS SANDWICH CONSTRUCTION—In New York, the New York University college of engineering recently installed a new hydraulic testing machine capable of stressing structural materials to a maximum tension or compression load of 200,000 pounds. Purpose of the unit, reported the first to be installed for a sponsored research project involving aircraft sandwich construction, is to seek information on construction which uses face plies of metal fastened to a very light core of balsa wood, honeycombed cardboard or inorganic material.

SPIKES TARNISHING ACTION—Metal parts now can be stored several days without danger of tarnishing prior to operations such as lacquering, plating, assembly and packing by a protective solution developed by Lea Mfg. Co., Waterbury, Conn. It is said to prevent water staining and tarnishing of nickel plated and brass work and to some extent copper. Liquid has appearance and consistency of milk, and is used either at full strength or diluted up to 3 parts with water.

INSPECTOR'S HAVEN — Inspection plays a heavy role in the production from scrap of high-grade copper-base alloys in the Whiting plant of Federated Metals Division, American Melting & Refining Co. Set inspection procedures are followed for all types of scrap whether they are castings, tubes, wire etc. When sorting heavy scrap, for example, material is directed to sorting benches in containers set for convenient discharge without lifting. There, experienced sorters, equipped with mechanical and chemical facilities handle one piece at a time and determine by color, fracture and other tests what type of alloy is in the piece and segregate accordingly. (p. 76)

POSSIBLE NEW "TOOL"—Although it is possible to measure by x-ray diffraction the interatomic spacing of crystals in metals, several unresolved difficulties limit its application in spite of the fact the technique has been under study for 25 years. Comprehensive investigations by the metallurgy division of the National Bureau of Standards in the field of x-ray strain measurements have been directed toward improving the sensitivity and precision of this method in determining strains in metals. (p. 79)

SELF-JIGGING—Use of jigs and fixtures often may be eliminated in torch brazing aluminum by making the parts self-jigging, it is pointed out. This can be done by using mechanical assembly methods such as crimping, grooving, keying flanges or even spot welding. When jigs and fixtures are used, they should involve only "point" contact with the work in order to draw away as little heat as possible. If fixtures absorb too much heat during use, they should be designed to allow for the difference in expansion between steel and aluminum, if of steel. (p. 82)

MAKES POSITIVE SEAL—One of the latest seals developed for roll neck application is designed to seal in the vertical plane, and is positive at all times. Being a self-contained unit, it is flexible enough to take care of neck deflection, and sufficiently durable for most severe mill service. A feature is the multiple spring arrangement that provides for endwise movement of the roll without taking any mill thrust load. (p. 92)

News Summary—p. 29 *Market Summary—p. 117*

Controlled procedures effect quantity production of . . .

Reclaimed Copper Base Alloys

Guesswork is eliminated as modern assaying practice controls sorting, furnace charging, melting, refining, and casting at Federated Metal's Whiting plant

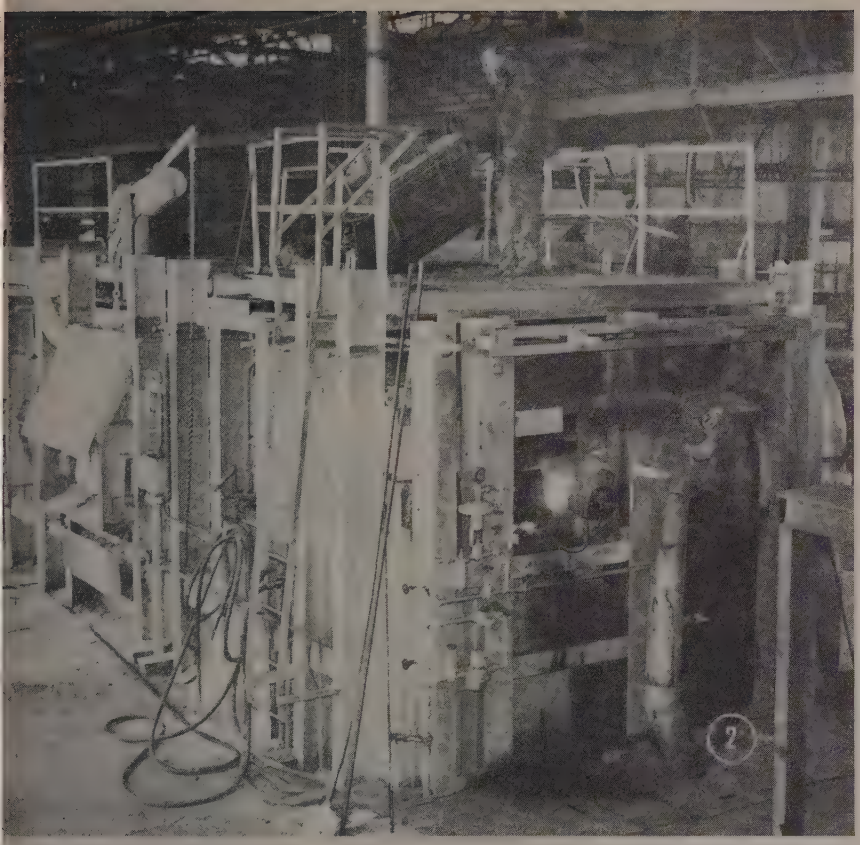
NOBODY familiar with the metallurgy of the most used copper base alloys can question the feasibility of meeting standard specifications for such alloys produced from selected scrap through proper control in charging and operating furnaces and in casting ingots from the resulting melt. It makes no difference in the final result—provided that proper procedures are followed—whether primary or secondary metals are employed.

Clearly, no established smelter would invest great sums of money in modern plants largely for reclaiming nonferrous metals (as has been done in the Whiting, Ind., and other plants of Federated Metals Division of American Smelting & Refining Co.) unless resulting alloys, produced on a large scale, could meet the exacting requirements of foundries and other metalworking plants most of which buy to specifications and have their own metallurgical facilities to see that purchases meet these specifications. The Whiting plant, described here, produces not only a large range of alloys based on copper, but white metals, including babbitts and solders, as well as lead and zinc alloys. In this article, however, only production of copper alloys is considered. Production of these alloys in this plant is done largely and often wholly from scrap metals that, as here described, are sorted with unusual care, assayed, mixed in required proportions, melted, again assayed, refined, and reassayed before, during, and after casting to insure a final product that is of specified analysis.

Purchases of scrap are made in large quantities, generally in carload or larger lots, with the understanding that payment will be based on an agreed price with deductions for iron, dirt and other ingredients not useful in making the copper alloys dealt with here. Any vendor not satisfied with the assay can have this checked independently, as all shipments are kept segregated until the sale is completed.

All incoming shipments are received either at a railway siding platform at plant floor level or at truck docks at the same level. Unloading methods depend upon the character of scrap but, as a rule, delivery is directly into skid or hoist boxes from which sorting is later done so that little or no labor in hand shoveling is necessary. All incoming lots are weighed and containers are given an identifying number and marked with their weight for later reference purposes.

Most scrap is handled in tote or skid boxes, generally of steel, and so designed as to be picked up readily either by one of the Cleveland tramrail cranes that serve most bays or by fork trucks, many of



By A. E. ST. JOHN
Technical Adviser
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New York

Fig. 1—Magnetic separator used for removing free iron from borings and other fine scrap materials which are fed from a hopper onto a belt. This view shows crane discharging skid bin into hopper

Fig. 2—Working side of 100,000-pound brass reverberatory furnace showing skimming doors, burners, and overhead charging hopper. Crane is discharging contents of skid bin through hopper

which are in constant use. Steel barrels are also used when more convenient than other containers and pallets are used for briquettes.

From receiving, scrap containers are spotted in various areas of a sorting floor, depending upon the nature of the scrap. Much light scrap is sorted on a belt conveyor from which it is picked by experienced sorters and dropped into suitable containers. Most such scrap is later put through a hydraulic briquetting machine having horizontal and vertical rams, as this makes for ease in handling later and reduces oxidation losses during melting.

Heavier scrap in pieces of medium size goes, in general, to sorting benches in containers set for convenient discharge without lifting. There, experienced sorters, equipped with mechanical and chemical facilities handle one piece at a time and determine by color, fracture and other tests what type of alloy is in the piece and throw it into one of several containers. Any adhering iron is removed. Finer scrap, including borings, is passed through a magnetic separator in which any iron particles that it may contain are removed to keep them out of the melting furnaces.

Castings such as valve bodies, faucets, bearings, bushings, hardware, gears, bells and propellers generally fall into fairly well defined classifications but, if they are large and of uncertain composition, drillings for assay may be taken. Scrap tubes, extrusions or other long scrap generally is quite easy to classify and is cut into convenient short lengths on an alligator shear to facilitate handling in tote boxes. Cable may be handled in a similar manner, especially if coils are large.

Considerable copper, especially that used in electrical conductors, including wire and bus bars, is also purchased and goes into a distinct class that is very useful because of high purity. Insulation, if any, has to be removed by burning it off.

After sorting, each group from a given lot is carefully sampled, usually by taking about 10 per cent of the total, and is sent to a room where, by subdividing, a truly representative lot for assaying is secured. This is run down, cast, and drillings are sent to the laboratory for analysis on the basis of which payments are made.

Total scrap received is commonly segregated into at least twelve classes that, besides nearly pure copper from electrical conductors, correspond roughly to the following eleven classes of alloys covered by A. S. T. M. designations B30-45T. These alloys have A. S. T. M. numerical designation as follows: Tin bronze (1A and 1B), leaded tin bronze (2A and 2B), high leaded tin bronze (3A and 3E inclusive), leaded red brass (4A and 4B), leaded semired brass (5A and 5B), leaded yellow brass (6A, 6B, and 6C), leaded high strength yellow brass (7A) also known as leaded manganese bronze, high strength yellow brass (manganese bronze) (8A, 8B, and 8C), aluminum bronze (9A, 9B, 9C, and 9D), leaded nickel brass (leaded nickel silver) (10A), and leaded nickel bronze (leaded nickel silver) (11A and 11B). In addition to the above, there are other classifications such as silicon bronzes, copper-nickel alloys, and ma-

terials generated from brass mill products such as copper-zinc and copper-tin alloys.

Naturally, no large lot of scrap is likely, as thus roughly sorted, to come within any A. S. T. M. specification having close limits but, knowing the sample analyses, it is not difficult, in general, to choose lots of metal that will come close to specification in many cases, when properly mixed and melted in a furnace holding large batches. It is the function of the metallurgist in charge of given heats to skillfully select from scrap inventories lots of metal that will give a close approximation to the specification needed to meet given orders. This, indeed, is the course followed.

When segregated scrap is thus selected and melted, analysis of the heat is likely to show minor departures from specifications in several respects and especially in respect to impurities. It then depends upon the metallurgist and furnace crew in control to refine or dilute the charge so that it will come within required limits. Experience and technical knowledge are required to do this skillfully and economically even though the metal is under constant control by means of many chemical analyses.

It is the function of the refiner to supply the materials, the skill, the experience, the equipment, the control and the processing necessary to yield the required results.

Some 80 to 90 per cent of the output of the department here considered is in the standard alloys above listed and a large proportion of these is produced in 50-ton oil-fired reverberatory furnaces whose operation is about to be described. These furnaces are arranged for charging through a top opening covered by a sliding door and are operated, in general, on about a 24-hour cycle timed so that pouring is done during the day shift.

Furnace charges usually are calculated days in advance with due regard for orders or such stocks as may be required to meet normal demands, as well as for maintaining a reasonable balance in the inventory of scrap on hand. Scrap must be chosen also, as far as possible, in such a way that the cost of removing impurities over and above those permitted in specifications can be accomplished at minimum or moderate cost.

Commonly, furnace charges are accumulated near the furnace by issuing to the craneman orders to take from scrap stocks certain numbered skips or other containers having a known weight of metal. These are picked up, of course, from areas where scrap has been segregated and in each of which scrap is all of like analysis. Containers are so marked, in general, that the craneman can read markings from his carriage and skips can be lifted by a special pick-up device operated by the craneman without help from floormen.

Each furnace charge is selected by the plant metallurgist, not only to yield the required analysis but to use inventories of heavy and light types, including borings. Charging is done by the craneman under control of a furnace foreman who checks each container against a list the same as that furnished the craneman.

Skips are dumped through the top opening in such order as the furnace foreman directs after the furnace is well heated. Heavy scrap is supplied first and light scrap and borings are not added until there is a sufficient depth of molten metal to cover them and thus prevent undue losses by oxidation from large surfaces.

Besides metals, it is necessary to add, of course, the amounts and types of fluxes called for in the charging schedule. Fluxes used include soda ash, fluorspar, charcoal, borax, broken glass, and others to produce specific reactions. As the quantity of flux needed is relatively small and it has to be well spread over the top of the molten (*Please turn to Page* 104)

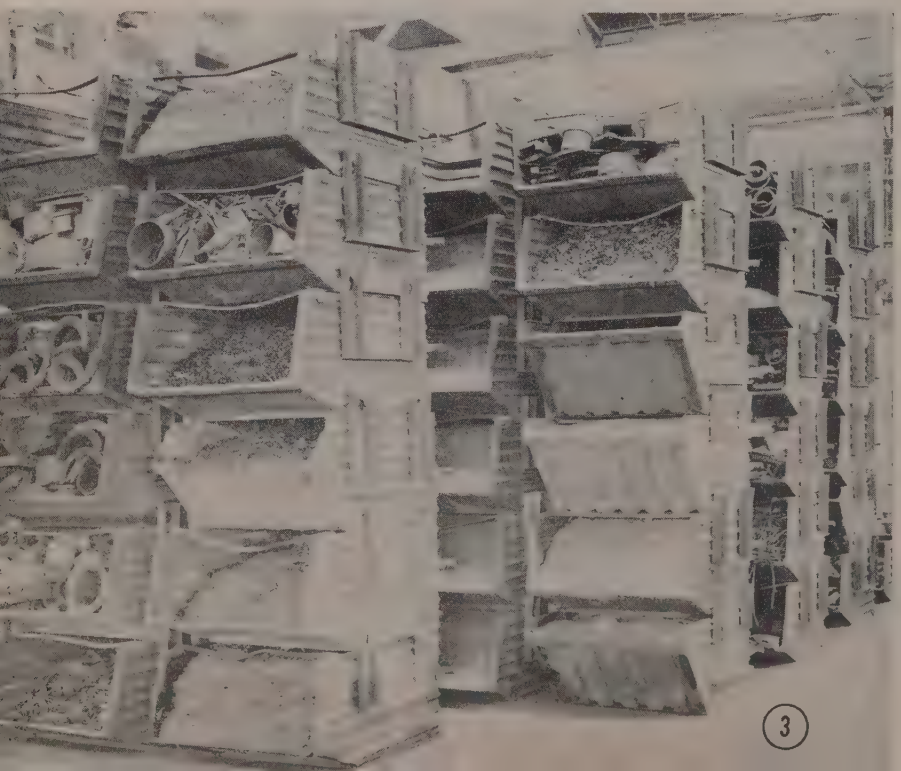


Fig. 3—View of skid bins in which sorted and assayed scrap is stored pending removal to melting furnaces. Each bin is marked to show weight and class of contents which overhead crane operator can pick up and discharge directly into reverberatory furnace

X-RAY MEASURING STRAINS IN METAL

Apparatus assembled at the National Bureau of Standards will be used in an effort to correlate progress of fatigue damage with surface strain measurements

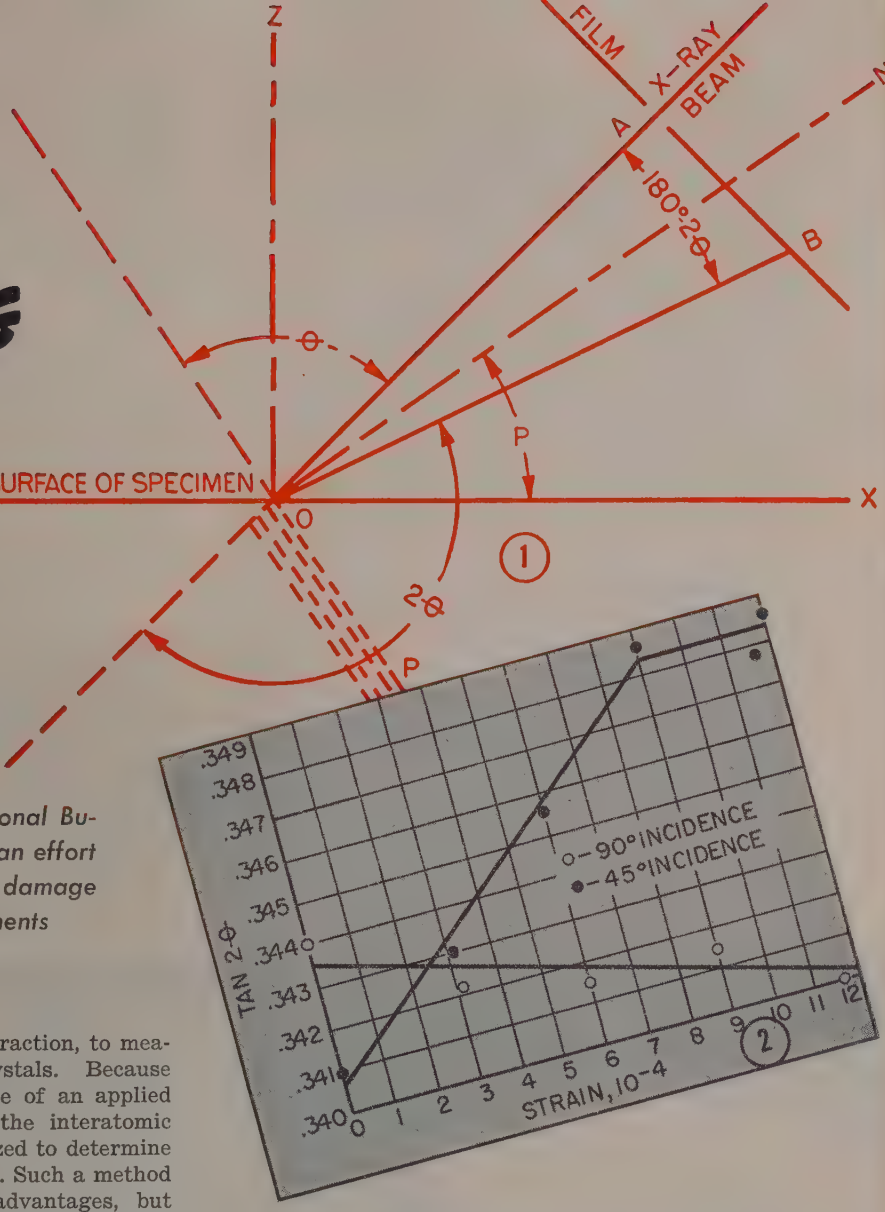


Fig. 1—Schematic diagram of method used to measure strain in metals by means of x-rays

Fig. 2—Calibration curve for method developed at the National Bureau of Standards for x-ray measurement of strain in metals. Results obtained by irradiating a flat steel specimen under tensile stress are plotted against surface strain values measured with strain gages

IT IS possible, by means of x-ray diffraction, to measure the interatomic spacing of crystals. Because a crystal deforms under the influence of an applied stress, with a resultant change in the interatomic spacing, x-ray diffraction can be utilized to determine the magnitude of strain in the crystal. Such a method of measuring strain offers many advantages, but several unresolved difficulties have limited its application, though the technique has been under study for the past 25 years.

Comprehensive investigations by the metallurgy division of the National Bureau of Standards in the field of x-ray strain measurements have been directed toward improving the sensitivity and precision of this method of determining strain in metals. The bureau's special interest lies in the possible importance of the method in detecting fatigue damage in metals before an actual fracture occurs.

Deformation of metals can be of two kinds, elastic and plastic. Elastic deformation is the result of a change in interatomic spacing, while in plastic deformation slipping of the atomic planes takes place without change in the dimensions of the crystal lattice. Because of this difference, the strain measured by x-ray diffraction is limited to the elastic portion and is not affected by elastic deformation.

For some purposes this is a major advantage as compared to those methods which measure only the total strain. Other advantages are: (1) Length over which the strain is measured can be made very small; (2) strain can be determined without the necessity of a measurement on the unstrained metal; (3) strain is measured in a very thin surface layer. These advantages make the method particularly suited for applications such as the determination of internal stresses in metals.

As opposed to the advantages of the x-ray method of measuring strain, there are several disadvantages, the most serious of which is the lack of sensitivity. Determination of strain involves measuring the change of diameter of the diffraction ring from the specimen. In the case of metals this ring is in-

herently quite diffuse, due to imperfections in the metal crystal. With annealed metals the width of the ring is about the same magnitude as the maximum diameter change expected from elastic strain. For cold-worked metals the ring becomes much more diffuse; it is difficult to detect any change due to elastic strain.

Although improved x-ray strain measurements have resulted from the bureau investigation, the work was initiated primarily to apply the x-ray stress-measurement technique to detection of fatigue damage in metals. Fatigue is the term used to denote the progressive fracture of metals under the action of fluctuating stress. The magnitude of the fluctuating stress which will eventually cause failure is much smaller than that required to fracture the metal under static conditions, and as a result fatigue is a primary cause of failure in machine elements.

Course of a fatigue fracture can be divided into two stages: First, the metal undergoes some sort of deterioration or damage which finally results in the formation of a very small crack; and second, the crack grows until the member is weakened to such an extent that it fractures suddenly. At the present time no reliable method is known for the evaluating of damage which takes place during the first stage except through a fatigue test. It would be extremely valuable if some means were available for measuring this damage by nondestructive means.

In 1941, Glocker, in Germany, reported the results of x-ray stress measurements made on fatigue specimens, by means of which he claimed to be able to detect fatigue damage. The method involved the measurement of surface stress in the specimen under static load after various amounts of fatigue stressing. He found that after the specimen had been damaged by fatigue stressing, the stress in the extreme surface layers was not so large as it would be if the material were homogeneous. Because of the apparent significance of these results, it seemed desirable at the bureau to pursue further this line of investigation.

It was immediately evident that the primary requirement was to obtain better precision of stress determination than is possible with the methods commonly used. In the method devised by the National Bureau of Standards the film is placed at right angles to the incident x-ray beam so that it intersects a diffracted beam at an angle that depends on the spacing of the reflecting planes, (Fig. 1) according to the Bragg equation,

$$n\lambda = 2d \sin \theta.$$

In this equation n is the order of the reflection, λ is the wavelength of the x-rays, d is the interplanar spacing, and θ the diffraction angle. When d is changed by the application of stress to the specimen, the strain in the direction of the normal to the reflecting planes is measured by the change in θ. As x-rays can be diffracted in any direction making an angle of 180 degrees—2θ with the incident beam, the diffracted beam forms a cone which intersects the film in a circle. The diffraction angle is computed from the specimen- (*Please turn to Page* 90)

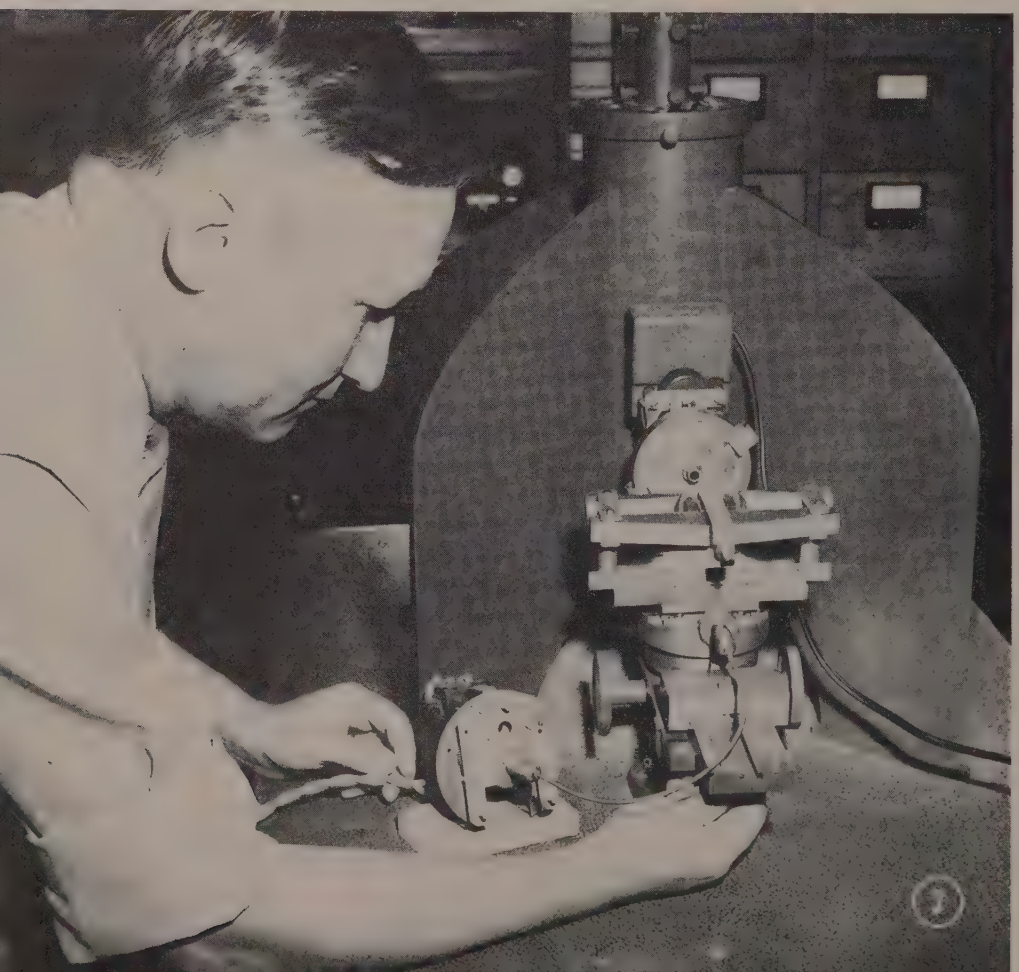
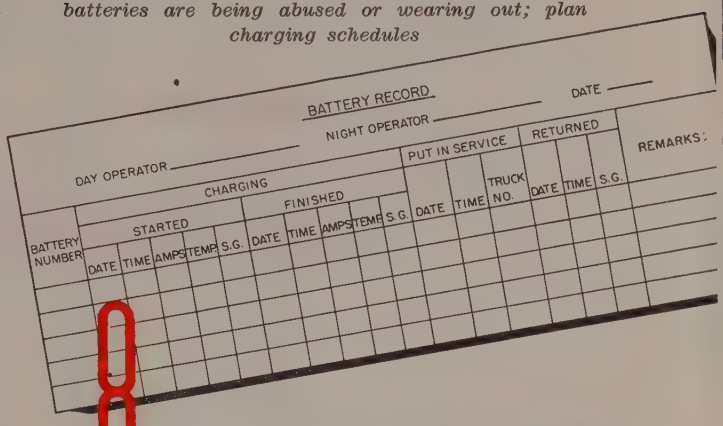


Fig. 3—This apparatus x-ray measures strain in metals. The x-ray beam, originating within the x-ray equipment and emerging through a pin hole at the center of the circular film holder (right center) is diffracted by the crystals of the metal specimen mounted under tensile stress directly in front of the film holder. Diffracted x-ray beam is recorded on film located behind aluminum foil in the holder. Measurement of the diffraction rings thus recorded permits a determination of the strain in one specimen

Case histories of batteries should be kept on record cards similar to this. Engineers can determine if batteries are being abused or wearing out; plan charging schedules



8 General Rules Simplify

INDUSTRIAL TRUCK BATTERY MAINTENANCE

By K. A. VAUGHAN
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STORAGE batteries are the heart of electric industrial trucks. Their care and maintenance is of utmost importance if maximum battery life and most efficient truck operations are to be realized. Adherence to the following eight simple rules is an easy procedure that pays dividends:

1. Purchase correct capacity batteries
2. Keep batteries clean
3. Add water at regular intervals
4. Charge correctly
5. Make periodic inspections
6. Keep accurate records of all activities
7. Keep the battery charged when not in use
8. Repair when necessary

It is obvious that by purchasing an oversized battery money is wasted on excess capacity which is not needed. It is equally false economy to purchase a battery which is too small for the job. Too small a battery results in repeated overdischarging which in turn results in decreased battery life.

In estimating battery capacity requirements, the ampere-hour or kilowatt-hour capacity required for each shift should be considered as 80 per cent of actual battery requirements. Battery or truck manufacturers' representatives are available to determine more closely actual requirements. While on the subject of overdischarging, two additional causes should be mentioned. They are: (1) Insufficient supply of batteries and (2) inadequate charging equipment.

As a guide against having an insufficient number of batteries, 2.1 batteries per truck can be used as a minimum for three-shift operations, provided available charging equipment can recharge each battery in 8 hours.

To prevent overdischarging, two methods are commonly employed: (1) A discharge indicator which records battery voltage is mounted on the truck body so the operator can tell at a glance what the condition of his battery is. The indicator is calibrated fully charged, half charged, quarter charged, and discharged. It can be mounted on any type of vehicle and is adjustable for 6-12-24-30-32-36 and 48 volts.

2. Periodic checks can be made of the specific gravity of the battery during duty cycles. Some users establish a schedule whereby equipment is returned to the battery charging room every 4 hours for a specific gravity check and if the specific gravity is 1.200 or lower the battery is removed from the vehicle and charged. If the specific gravity is above 1.200 the battery is continued in service for another 4 hours. Under this system batteries usually receive one heavy discharge and one light discharge every 2 days. This has proved most successful in keeping equipment in operation and reducing battery costs by extending the battery life.

Cleaning—Object of cleaning is to prevent stray current leakage across top of the battery and grounds to the truck body. Frequency of cleaning will depend upon the conditions under which the batteries operate and upon the surrounding local atmosphere. Cleaning schedules vary from once a day to once in several months.

First step in cleaning is to be absolutely sure that all the vent plugs are in place and tight. Water or air is then usually applied from a house to accomplish the actual cleaning. When water is used the battery should be wiped dry to prevent possibilities of current leakage. Concentrated sodium bicarbonate solutions are also used in cleaning operations. In this case a spray gun or commercial paint spray is used.

Terminals and connectors may be cleaned with a concentrated solution of soda ash and water. They should never be scraped, for scraping might damage the lead plating of the copper connectors and so expose the copper to the corrosive action of the acid. In the cleaning process, the soda of the solution neutralizes the acid. Therefore, washing should be continued as long as there is evidence of the presence of acid (bubbling at the point of neutralization). After metal surfaces are thoroughly neutralized, they should be dried and a thin coating of battery grease or vaseline applied to prevent the acid coming in contact with the copper.

Adding Water—Level of the electrolyte in the cell is to be maintained between low level and high level points. The minimum low level point should be above the splash cover. Maximum high level point is just under the bottom of (*Please turn to page* 102)

Torch-Brazing

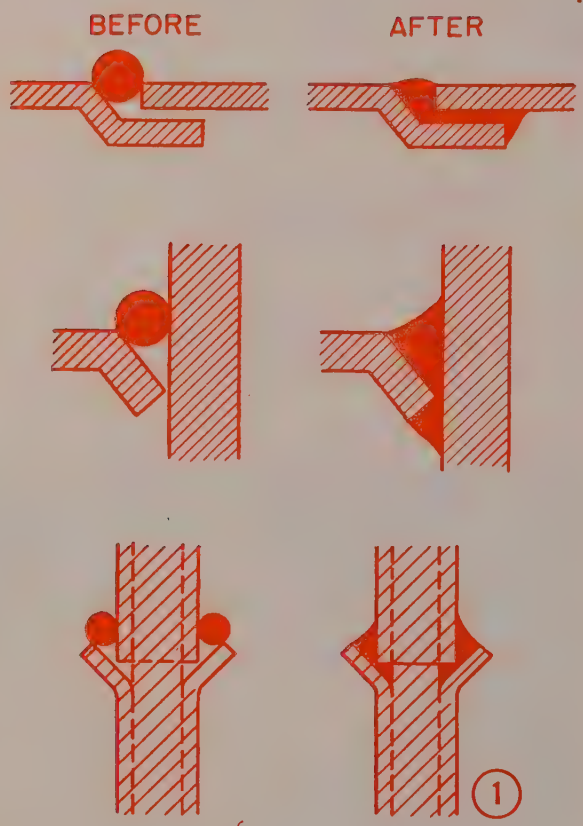

Fig. 1—Good joint designs

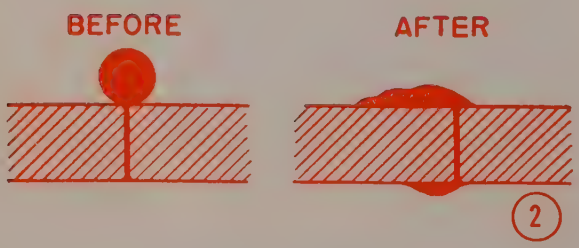

Fig. 2—Poor joint design

WELDING involves melting the base metals being joined. Soldering and brazing do not. Soldering differs from brazing in that the filler metal melts at temperatures below 800° F, while brazing alloys melt at higher temperatures. Thus torch brazing is quite similar to soldering with a torch except for the higher temperatures involved.

Not all aluminum alloys can be brazed successfully as yet. Table I lists those for which satisfactory procedures have beeen developed. Brazing the copper type alloys 11S, 14S, 17S and 24S is not practicable at present because of the serious reduction in corrosion resistance and mechanical properties. The very tough and resistant oxide film on the magnesium type alloys 52S and 56S makes them ordinarily unsatisfactory, although they can be brazed by special procedures. In design work, it is important to remember that the common alloys 2S and 3S in the cold-worked temper will be annealed by the heat of brazing. Since cold working after brazing is not practicable, design strength figures should be based on annealed metal. The heat-treatable alloys, however, can be heat treated after brazing so extremely high strengths are available. See Table I on opposite page.

Strong Joints—Brazing metal actually alloys with the base metal at the joint, producing high bond strengths. Mechanical properties of the metal in the joint are also high. The 5 per cent silicon type brazing metal is similar to the aluminum sand casting alloy 43 which has a minimum tensile strength of 17,000 pounds per square inch with 3 per cent elongation typical tensile strength of 19,000 pounds per square inch with 6 per cent elongation; 14,000 pounds per square inch in shear. Mechanical properties of brazed joints thus closely approach similar properties of welded joints.

Designs for brazing should embody the use of fillets. Capillary action will then draw any excess brazing alloy into the fillet, greatly facilitating the production of smooth uniform joints without the need for grinding off the joint to remove excess metal. This principle is illustrated in Figs. 1 and 2. Note also that butt or scarf joints are not recommended. Instead, design for lap joints wherever possible are shown. T, line contact, and lock seam joints may also be used. Lock seam joints, however

Some aluminum alloys can be torch-brazed with excellent results, provided parts are properly designed and overheating avoided

Aluminum

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may involve difficulty in providing proper clearance for flow of brazing alloy into the joint. Shape should permit cleaning of joint after brazing.

Generally 0.006-0.010-inch will be sufficient to secure proper flow of brazing alloy into the joint. For laps over ¼-inch, clearance may be increased to 0.025-inch. Trial will quickly show best value to use.

Jigs & Fixtures—Jigs and fixtures often may be eliminated by making the parts self-jigging through use of mechanical assembly methods such as crimping, grooving, keying flanges or even spot welding. When jigs and fixtures are used, they should involve only "point" contact with the work in order to draw away as little heat as possible.

If the fixtures absorb much heat during use, they should be designed to allow for the difference in expansion between steel and aluminum, if made of steel. Aluminum expands almost twice as much as steel. Of course, making the fixtures of aluminum solves the problem of unequal expansion and so is recommended. The aluminum jig must be shaped to avoid contact with brazing flux or with the filler metal.

Brazing alloys 43 and 716 are most commonly used. They are both available in various rod sizes. Table II shows sheet thicknesses with rod and tip sizes recommended. Alloy 43 contains 5 per cent silicon, remainder aluminum. It is probably the most widely used, being specifically recommended for 2S and 3S aluminum. It melts at 1160 to 1185° F. Alloy 716 contains 4 per cent copper, 10 per cent silicon, remainder aluminum. It melts at 1060-1090° F and is recommended for use in brazing R353 and 63S aluminum.

Brazing fluxes are patented compositions of various chlorides and fluorides. Flux 33 probably is most widely used. It has the lowest melting point and is the most active chemically, producing maximum flow of the brazing alloy. It can be used when brazing at temperatures below 1100° F. Flux 30 is the least expensive. It has a somewhat higher melting point, being used for brazing at temperatures of 1100° F and higher. It is not so active chemically as 33. Flux 53 is least active chemically, leaving the surface of the metal practically untouched. This flux is thus suitable for brazing sheet 0.020-inch thick or less, as well as assemblies where a smooth surface is important. Flux 53 is used at temperatures of 1100° F and above.

Cleaning—While removal of foreign material may be sufficient cleaning for torch-brazing, chemical treatment of surfaces in and near the joint is recommended. Even though it is not possible to remove the natural oxide film completely and prevent its reforming, it can be replaced with a thinner and more uniform film.

Parts to be brazed are dipped for 30 seconds in a 5 per cent solution of sodium hydroxide at 160° F; followed by a water rinse, dipping for 30 seconds in a 10 per cent solution of nitric acid, another thorough water rinse, and drying. Where tanks may not be available, the chemical solutions can be brushed on the joint areas. Extreme care must be used to rinse these solutions completely.

Brazing Practice—After joints have been cleaned and usually before the parts are assembled for brazing, the fluxing solution is brushed on the filler wire and on the joint area. Flux is received in powder

TABLE I
Nominal Mechanical Properties of Aluminum Alloys Recommended for Torch Brazing

Alloy	Ultimate Strength PSI	Yield Strength 0.2% set PSI	Elongation % in 2 inches
2S-0	13,000	5,000	40
3S-0	16,000	6,000	35
R353-0	16,000	7,000	35
R353-T4	33,000	20,000	30
R353-T6	39,000	33,000	20
63S-F	22,000	13,000	20
63S-T5	31,000	24,000	13
63S-T6	35,000	30,000	12

TABLE II
Typical Oxyacetylene Torch-Brazing Conditions

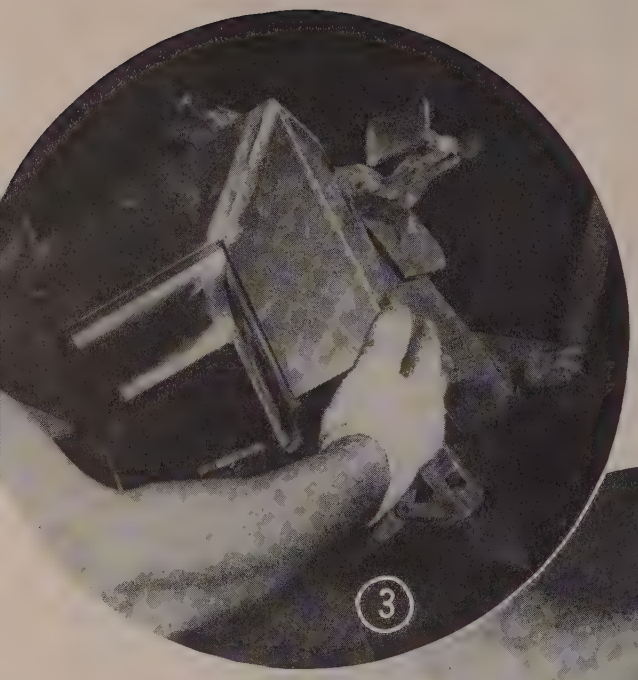
Metal Thickness Inches or B & S Ga.	Rod Diameter Inches	Tip Orifice Diameter Inches
5/8	3/16	0.105
3/8	1/8	0.095
1/8	5/32	0.085
1/4	5/32	0.075
3/16-1/8	1/8	0.065
10-12	1/8	0.055
14-16	3/32	0.045
18-20	3/32	0.035
22-24	1/16	0.025

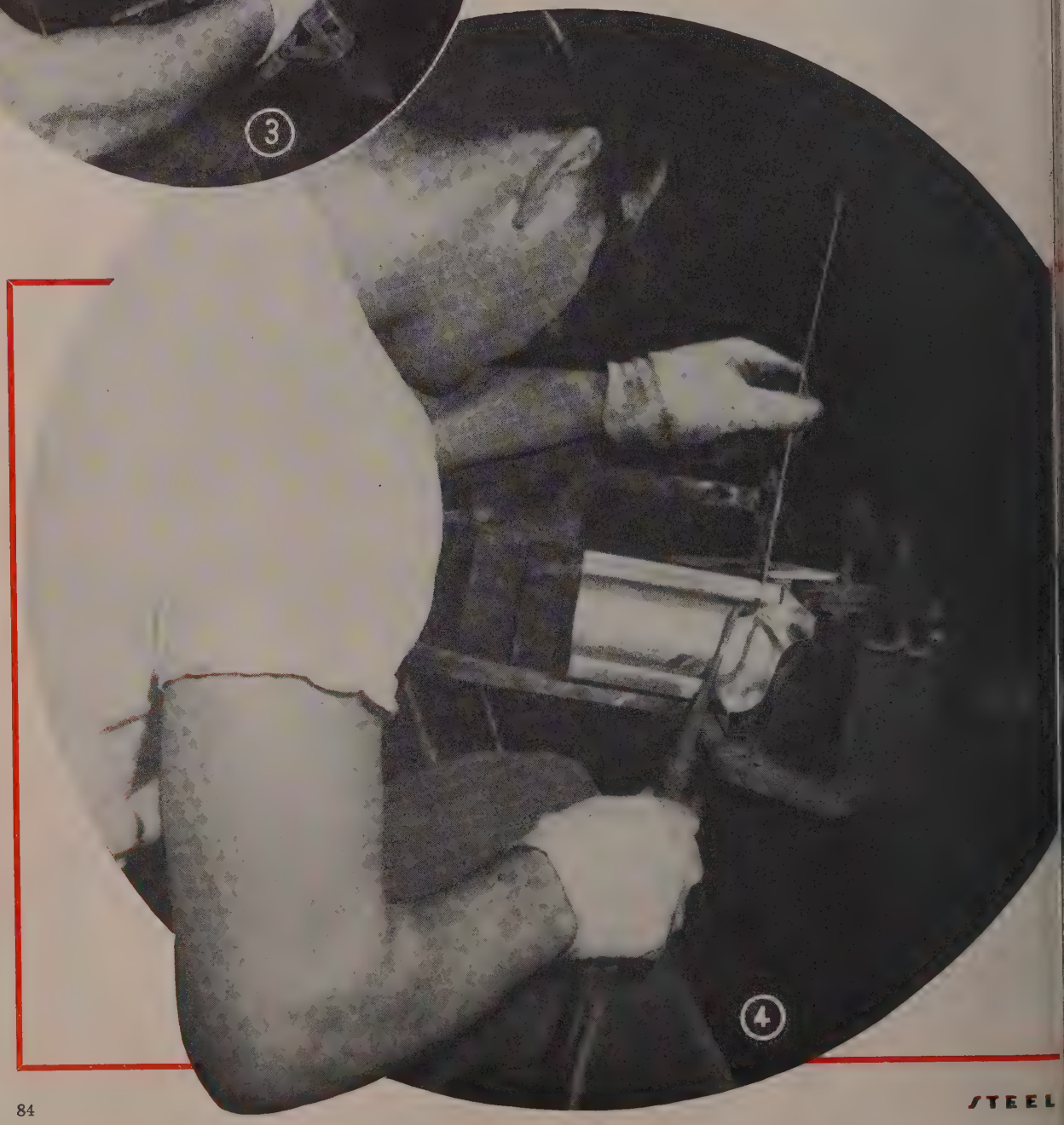
Note: Adjust torch for reducing flame.

form and prepared for brushing as a paste, by mixing three parts flux with one part water. For application by dipping, 35 parts flux are mixed with 50 parts water. Wetting action can be improved considerably in either case by adding a wetting agent, such as a 0.1 per cent solution of Tergitol 4.

A welding torch using oxygen and hydrogen, acetylene, or natural gas can be used for brazing. Since the heat required is near the welding range, tip sizes in Table II are also similar. For good brazing, a reducing flame is essential.

Heat is applied to the work carefully to avoid overheating and collapse of the parts from melting. As the work comes up to temperature, the liquid





flux will first dry out. Then as more heat is added, it will melt and flow freely. Just as the brazing temperature is reached it will tend to fume or smoke slightly. That is the temperature indication beyond which the parts must not be heated or melting will result.

Since aluminum shows no color, even when molten, careful attention to heat indications provided by action of the flux is necessary for successful brazing. Remember when the flux melts, you are close to the brazing temperature. Proceed carefully from that point. Remember to adjust the torch to obtain a reducing flame.

Flux used in brazing aluminum displaces rather than disolves the surface oxide. So it is best to flow the brazing alloy in from one side of the joint. Holding the flame back of the braze and pointing it ahead toward the uncompleted portion will encourage the flux, displaced oxide and foreign particles to escape ahead of the molten metal, thus avoiding entrapment and porosity.

When brazing 52S and 56S, the oxide coating must be mechanically abraded with the end of the rod while at heat and covered with flux to break through the tough oxide coating on these alloys.

Aluminum brazing alloys will be found more viscous than other brazing alloys, a distinct advantage where gaps must be bridged. Also aluminum brazing alloys tend to surface creep or flow because of their intersolubility with the base material. These characteristics reduce torch brazing of aluminum to little more than skillful heating of base metal to melt the brazing alloy which readily flows through all portions of the joint by capillary action. Wearing gloves is recommended not only to protect the operator's hands but to prevent finger prints and subsequent staining of the work.

Flux Removal—Flux removal is extremely important. Any flux allowed to remain will corrode the metal. Flux can be removed by a 30-minute dip in a 10 per cent solution of sulphuric acid, or by a 10 to 20-minute dip in a 10-15 per cent solution of nitric acid. If impractical to immerse work, scrub thoroughly with a 20 per cent solution of nitric acid for a few minutes. In any case, follow by thorough rinsing with hot water to remove the cleaning solution.

Another immersion method involves dipping the work in a tank of hot water at 180° F followed by dipping in acid solution of Clepo 180S (Frederick Gumm Chem. Co.) at room temperature. A hot or cold water rinse then completes the cleaning.

Typical job of aluminum torch brazing is the outside rain gutter miter shown in Figs. 3, 4 and 5. Work is done while parts are clamped in a fixture mounted on trunnions to permit rotating the assembly while brazing. For this part, 3S-H14 sheet 0.027-inch thick is roll-formed to shape, then mitered by sawing. A simple butt joint is brazed using 43 brazing alloy, 33 flux, and an oxyacetylene torch with a 2 tip.

Fixture was originally built of copper. However, heat was carried away too rapidly so masonite blocks with a narrow copper insert at the brazing area were substituted with excellent results. Over a period of time, the heat tends to swell the masonite slightly, necessitating occasional trimming but this doesn't appear to be objectionable. Production rates attainable by an experienced operator range from 25 to 35 units per hour.

Fig. 3—Positioning mitered components on jig prior to brazing

Fig. 4—Torch brazing joint with clamps in place to hold work

Fig. 5—Removing rain gutter miter from jig

—o—

Underwriters Approve Aluminum Ducts

Ducts for air conditioning, warm air heating, air cooling and ventilating systems may be made of aluminum, approval of the National Board of Fire Underwriters being granted on the recommendation from the Committee on Air Conditioning of the National Fire Prevention Association. The recommendation came after a study of the metal's performance in a large number of duct work applications.

Revised to include standards for ducts constructed of aluminum, the NBFU pamphlet No. 90 is available from the board's New York, Chicago or San Francisco offices. New changes include a section which points out the aluminum, cadmium plated or zinc coated hardware and fittings, such as nuts, bolts, clamps, sheet metal screws and rivets that would be used in fabrication and erection of aluminum duct work.

New Joining Process

. . . brings automatic welding to hand tool

FROM an engineering point of view, the new welding process developed by Air Reduction Sales Co., New York, reported in STEEL, Nov. 1, 1948, p. 55, involved new concepts of a combination of factors including current density, gas shielding and filler wire feed speeds. It enabled the company to include in a hand tool the nearest thing to automatic joining, while maintaining the flexibility of movement usually inherent in such tools.

Facility associated with metal arc welding of steel, plus the advantages of a high deposition rate resulting in continuous filler metal feed and the absence of slag is made available by the method, the company points out.

A gas-shielded, metal arc method of welding, the process can be used for joining heavy sections of aluminum and aluminum alloys in all positions at wire feed speeds ranging from 100 to 300 inches per minute. Referred to as the Aircomatic process, it involves feeding a consumable wire, that replaces the conventional nonconsumable tungsten electrode, through the barrel of a welding gun. This filler metal carries the welding current, and arc is maintained between the end of the wire and the work. Power is supplied from a standard alternating current welding generator, and argon is used as the shielding gas.

Three Sizes of Filler Material

For welding aluminum, only three sizes of filler metal are needed—3/64, 1/16 and 3/32-inch. With these sizes the overall current range is 70 to 450 amperes. This permits welding metal thicknesses from 1/8 up to 2 inches and more.

Fig. 1 shows the welding "gun", which resembles an automatic pistol. It is equipped with a trigger that readies the unit for welding, and a "jog button" for feeding wire when not welding. Welding is started by merely depressing the trigger and locking it in the "on" position. This action also starts the flow of the shielding gas. Arc voltage is established by simply scratching the electrode, which projects from the nozzle, on the work. When the arc is established, the controls energize the feed motor and deliver the filler metal. In welding, the operator's task consists of holding the gun so that it points ahead in the direction of welding. Equipment used in the process is shown in Fig. 2.

According to the company, manual units are now coming off the production line and will be generally available by the end of the year. Automatic equipment employing the same principles is also under development. The application of the process to metals other than aluminum and aluminum alloys also is being studied in the company's research laboratory.

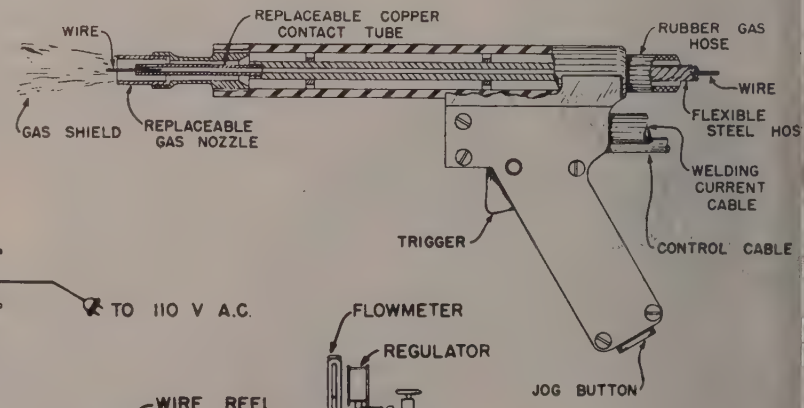


Fig. 1 (above)—Details of welding gun employed in the Aircomatic process

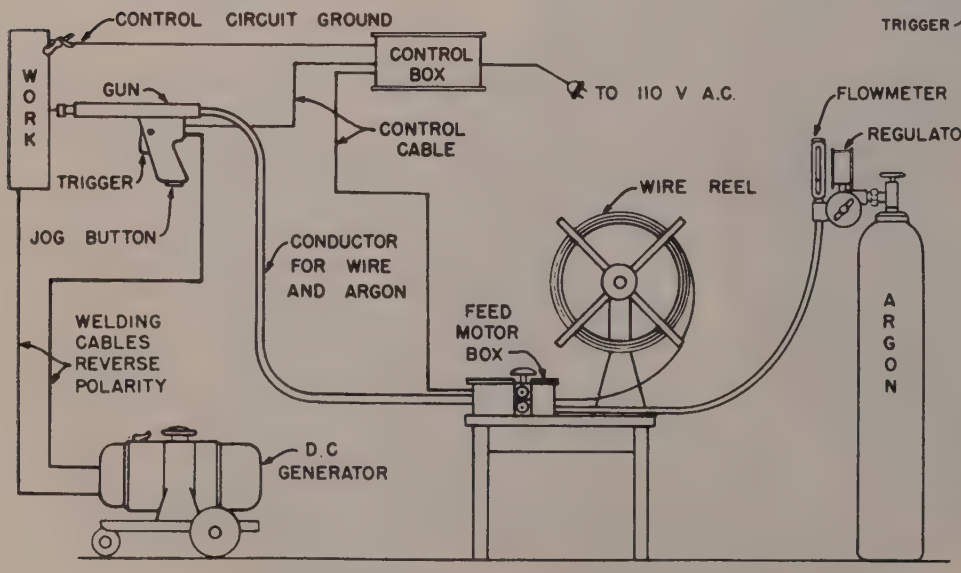
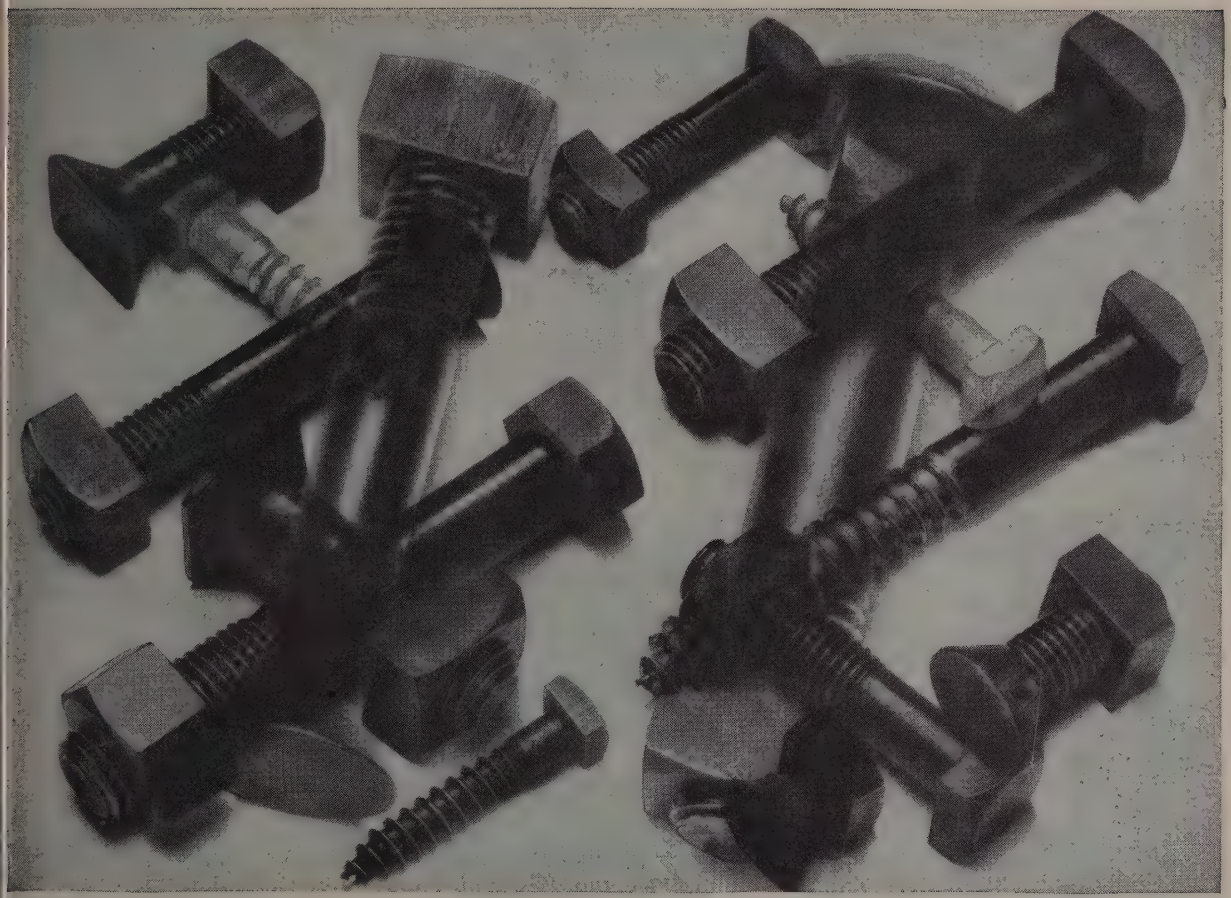


Fig. 2 (left)—Schematic diagram of equipment for inert gas metal arc welding of aluminum



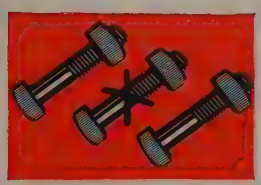
IT'S "t.f.e." TO STANDARDIZE FASTENERS

There are many ways you can cut fastening costs without sacrificing quality.

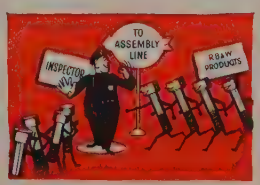
Experience has proved that *True Fastener Economy* is the lowest *total* cost of fastening . . . and that savings made in *indirect* fastening costs are greater than any possible saving in *initial* cost.

Standardizing fasteners throughout an entire plant has saved money in many places. Some RB&W customers have reduced variety of fasteners as much as 40% — with corresponding savings in cost of purchasing, receiving and stocking.

RB&W engineers will gladly assist you in a program of standardizing the fasteners used in your plant.



FEWER PER ASSEMBLY. Proper fastener specification, calling for stronger (hence fewer or smaller) fasteners, gives further savings in assembly time, machining and fasteners.



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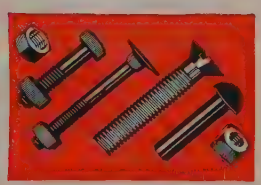

COMPLETE LINE. In addition to lag screws, machine, plow and carriage bolts (main illustration), RB&W offers a complete line of bolts, nuts, screws, rivets and allied fasteners.

t.f.e.

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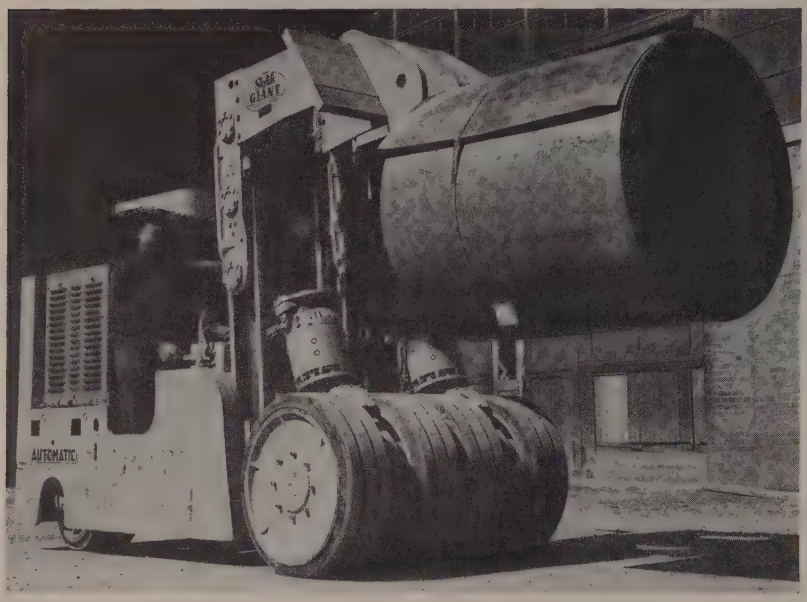
103 Years Making Strong the Things That Make America Strong

Rapid Heavy Coil Handling

. . . helps boost strip output

IN an attempt to offset rising production costs which are reflected in price changes in many consumer goods, steel plants are resorting to more modern techniques in processing greater quantities of steel in a single step, and more quickly. One medium instrumental in cutting cost corners is the high-speed cold strip mill. Coils involved, however, are larger than any handled before in strip production, therefore posing a further problem in their handling.

Finding that existing equipment was not up to the task of moving coils, some of which weighed up to 30,000 pounds, Ford Motor Co., one of the operators of the high speed mills, began using electric ram trucks designed especially for the purpose. Now at work in Ford's Dearborn, Mich., plant handling coils of this weight and more are two of the trucks, Skylift Giants, made by Automatic Transportation Co., Chicago.



Use of these materials handling trucks actually helps to increase cold strip production, according to the company. A reduction in crane delays to the cold mill department while giving the crane more time to service other jobs has been noted. Traveling approximately 100 feet, the trucks transport coils from the skin pass mills to the shipping area in a 24-hour-per-day operation. One truck removes coils from the discharge ramp of the 84-inch skin pass mill, places them on a scale, and takes them approximately 40 feet to the piling area.

The same unit carries coils from the annealing section to the 84-inch skin pass charge conveyor, 60 feet away, and moves coils already skin passed for the flying shear from the piling area to a convenient place for pickup by a crane. The two trucks handle a total of 350 coils daily, or one every 8 minutes.

Ford states that considerable time is saved in the operation since no hooking and unhooking is required and because the working height of the truck is less than that of a crane. Other advantages derived are lower maintenance costs, reduction in handling cost and added safety in handling.

Sponge Iron Production Progress Reported

Laramie,Wyo., is the scene of the Bureau of Mines sponge iron pilot plant which is reported to be making progress in the continuous production of the spongy material, extracted from ore without bringing it to the melting point. According to Report of Investigations 4376, Laramie Sponge Iron Plant, issued by the bureau, the 40 tests conducted between early 1944 and late 1945 show progress, but a number of difficulties remain to be overcome.

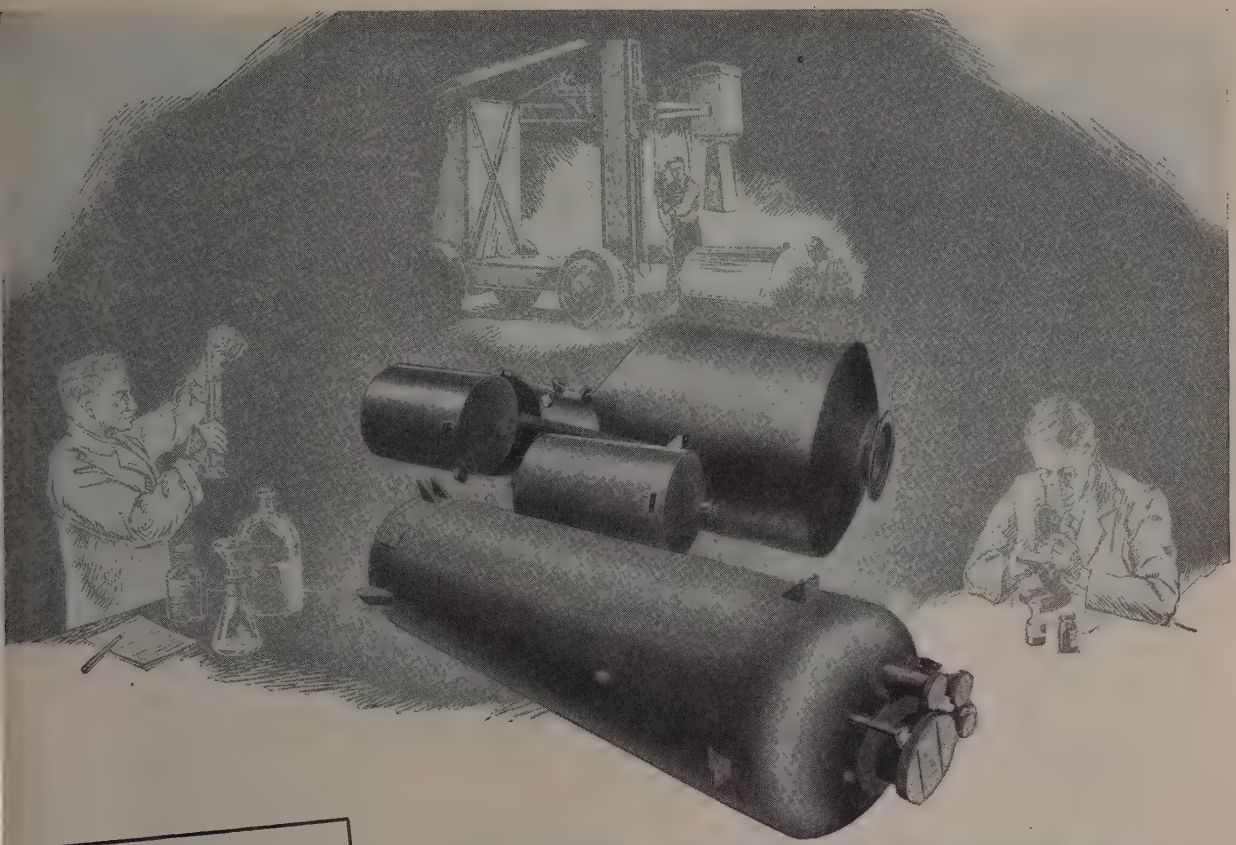
By using coal, char or gas (natural or manufactured), as a reducing agent, oxygen is taken from the ore at temperatures below the melting point of the iron or iron oxide. The final derivative can be used to take the place of scrap in steelmaking. Ore and coal or char, both ground to pass through a ⅛-inch mesh screen, are fed into the kiln at one end and it is fired with gas at the other. Slowing revolving, the materials pass through at a temperature from 850 to 1100° C then go through a cooler and are ejected.

Raw materials used in tests were iron ore from Wyoming, California and Arizona, coals from Wyoming and Arizona, coke breeze from Colorado and local limestone. When charred to remove the volatile matter, the sub-bituminous coals were found better reducing agents than the coke breeze. In some of the tests, limestone was mixed with the charge, the idea being to lower the sulphur content of the sponge iron, but the report says that its value appeared doubtful.

Although many of the problems involved in commercial scale production were solved, heat control and distribution were not altogether satisfactory. No way was found to prevent rings from forming on the kiln walls. These were the principal obstacles to continuous operation.

—o—

Suitable for application to pipes used in various industries, preformed, factory made pipe fitting covers of Foamglas, made by Pittsburgh Corning Corp., Pittsburgh, are for use where exact temperature control is required, whether heat is to be retained or excluded. The covers are manufactured in all sizes for L's, T's, unions, valves, elbows and flange covers. Not affected by humidity, water or fire, the covers retain their insulating efficiency permanently. Use may be through the temperature range from minus 200 to plus 800° F.



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X-Ray Measuring Strain

(*Concluded from Page* 80)

to-film distance and the radius of the diffraction ring. It is usual practice to measure the radius at one or two points with a vernier scale.

Primary factor limiting the precision of the x-ray measurement of stress is the diffuseness of the diffraction ring, which makes it impossible to obtain exact values for the ring radius. As there did not appear to be any experimental method which would significantly improve the accuracy of a single measurement, it was decided to increase the precision of the stress determination by making a number of measurements of ring radius. For each stress condition, therefore, two diffraction patterns were taken at different angles of incidence, and twelve measurements of ring radius (at 30-degree intervals around the ring) were made on each pattern using a recording microphotometer.

Because the diffraction ring of a stressed specimen is not exactly circular, special methods of handling the data were developed to give a single value representative of the twelve radius measurements. These methods, which were used in the cases where averaging the measurements would have resulted in a loss of sensitivity, are valid only for uniaxial stress in surface of specimen.

In order to calibrate the method, tests were made on a flat steel specimen loaded in bending to produce a tensile stress in the surface under examination. Actual strain in the surface of the specimen was measured with wire strain gages placed above and below the spot which was irradiated with x-rays. Results obtained are shown in Fig. 2, on which the values obtained from measurement of the diffraction ring are plotted against the surface strain. Each of the points represents data from one diffraction pattern, the open circles being for patterns taken with the incident beam normal to the surface, the closed circles with 45-degree incidence. The direction of change of Θ is different in the two cases because the lattice contracts in directions at right angles to the applied stress.

A significant fact is revealed by the curve for 45-degree incidence which flattens out at a strain value of about 9×10^{-4}, indicating that plastic deformation occurred when the strain was greater than this value. However, the 90-degree curve shows no flattening up to the maximum applied strain. From this it appears that plastic deformation in one direction in a crystal does not affect the atomic spacing or elastic properties in other directions where the strain is not great enough to cause slip. Such results suggest that the measurement of lattice strain by means of x-rays might provide a powerful tool for investigation of mechanism of plastic deformation.

In order to obtain a single value representative of the lattice strain, the difference between the values of 90 degrees and 45 degrees was used. The relationship between this difference and the measured surface strain was found to be linear, the maximum deviation of any point from a linear relationship corresponding to about 1000 pounds per square inch stress.

IMPROVES STEELMAKING

A new metallurgical technique—electric hot topping—developed by M. W. Kellogg Co., Jersey City, N. J., is reported to give higher yields of sound ingot metal than with methods currently used by the steel industry. According to the company, it does this by preventing formation of cavities or "pipe" during cooling of the metal from a molten to a solid state. The cavities ordinarily form in the upper region of the ingot and necessitate cropping and remelting the metal.

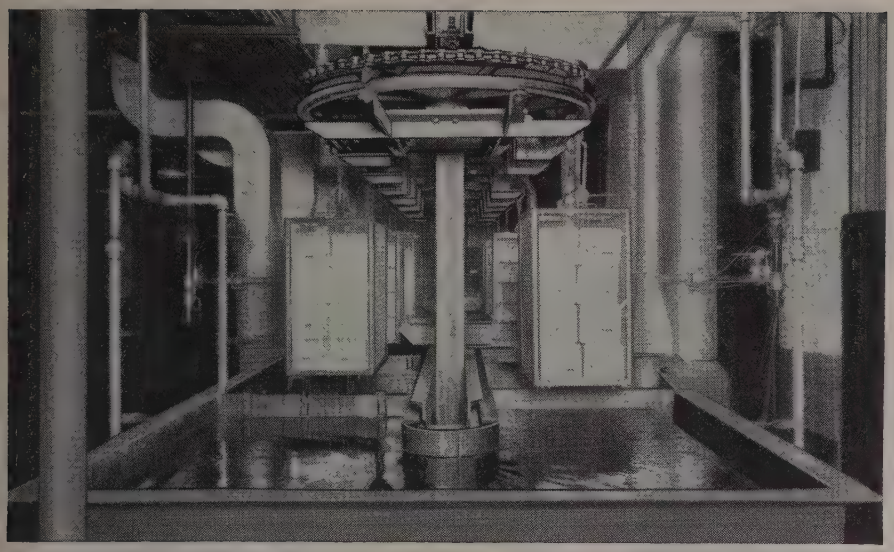
The method consists of supplying heat via an electric discharge to the top of the metal ingot which is covered by a protecting blanket of flux. As a result, a cone-shaped reservoir of molten metal is continually maintained at the top of the ingot. This feeds the solidifying metal underneath and prevents formation of cavities as volume changes. The patented process is now available for use by all steel companies. Currently, it is licensed to Allegheny Ludlum Steel Corp., and several other steel concerns.

RIBBON APPLIED LUBRICANT: Packed in rigid leadproof paper cartridges which fit in specially designed gun applicators, a new heavy lubricant for open gears operating under extreme service conditions retains its plasticity, tenacity and density from subfreezing to its melting point, over 400°F. Made by Keystone Lubricating Co., Philadelphia, the grease is fed through the nozzle in a broad ribbon for easier and more economical application. Application may be while gears are in motion

New Book is Survey of Management Techniques

Results of 28 years of management engineering experience are contained in the recently published book, "Managerial Control of Business", written by the staff of Trundle Engineering Co., Cleveland and published by John Wiley & Sons Inc., New York. Edited by George T. Trundle Jr., president of the company, the book is a survey of management techniques.

As stated by Mr. Trundle, "we had to sit down together and define specifically the procedures we advocate and the courses of action we believe in, with proper functioning of managerial control". Associate editor of the book is S. A. Peck and contributing editors are W. E. Savage, R. C. Trundle, R. P. Brooks, H. L. Wood, C. A. Hyre, C. O. Malpas and A. Dangler Jr.



How would YOU have solved this metal-finishing problem

The Story: Because of shortages of steel, Minneapolis-Honeywell decided to use aluminum for its regulator covers. But this change introduced a knotty problem . . .

The Problem:

Since aluminum does not bond paint to itself firmly, a process had to be worked out by M-H engineers to inactivate the metal's surface and permit an adherent paint-to-metal bond. This process involves several cleaning, rinsing and chemical-bath operations before painting can be done. *How to turn out regulator covers in mass production—involving this multiple-stage process?*—that was the problem.

The Solution:

"Why not adapt a Udylite Fully Automatic Plater?" the researchers asked. "This isn't an electrolytic process, to be sure, but it does involve certain chemical-bath operations which must proceed *continuously* and be timed *accurately*." So they did. With these results:

1. *The Udylite plater's fully automatic mechanism provided the* continuous *production-line processing needed.*

2. *The Udylite machine's hydraulically-actuated immersion mechanism made it possible to adjust the speed of immersion and withdrawal of the work* individually *and* accurately *to the requirements of the individual run.*

3. *Straight-up-and-down raising and lowering of the work saved 18" to 24" of tank per transfer, prevented "floating off," and assured adequate drainage of solution from work parts.*

4. *MASS-PRODUCTION WAS ACHIEVED; THE MACHINE TURNS OUT 25,000 REGULATORS PER HOUR.*

Is yours a problem involving automatic plating? better finishing? more output?

If so, call in the Udylite Technical Man, describe your problem and the results you want, and let him make recommendations. Udylite produces a complete line of plating and metal-finishing equipment—barrel platers, rectoplaters, Fully Automatics, Semi-Automatics, etc.—and laboratory-tested supplies. Our metal-finishing specialists will plan the most efficient process for your operations —without obligation. Call or write us today.

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PIONEER OF A BETTER WAY IN PLATING

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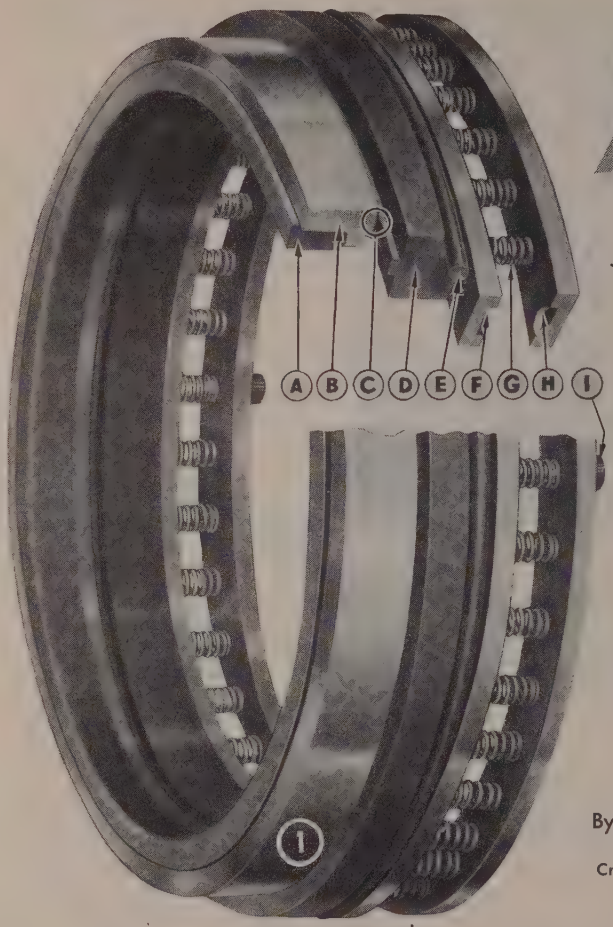
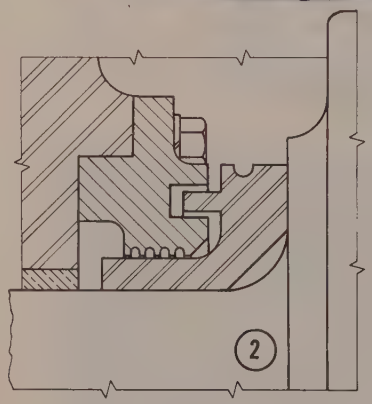
Roll Neck Seals

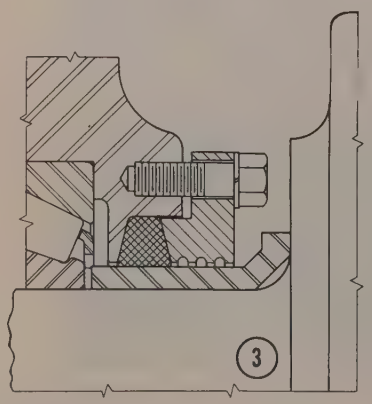
. . . their development and application



Sealing in the vertical plane with an end face type of seal that is positive at all times offers increased roll life, longer bearing life, no loss of lubricant, elimination of strip straining, and cleaner and safer mills

By F. E. PAYNE
President
Crane Packing Co.
Chicago





SINCE the advent of modern high speed, continuous rolling over twenty years ago, mill operators have been deeply concerned with the need for effective roll neck sealing. They have realized that improper and ineffective seals are the direct cause of many bearing troubles such as pitting, etching, scuffing and premature failure, plus scuffing and galling of the roll necks, themselves.

In addition to damage to various members involved, inefficient sealing has caused loss of lubricant, contamination of lubricant, and rejection of strip due to staining.

Prior to the late twenties, when steel rolling was essentially a slow speed, low load proposition, sealing at the neck was not a problem of particular importance to the steel industry. Bearings were usually of the water lubricated "plain" type, and relatively low speed rolling didn't require effective sealing.

When present high speed operation began with the installation of continuous rolling mills during the period from 1927 through 1931, roll neck seals suddenly assumed a position of paramount importance. Antifriction bearings were installed on necks of both work and back-up rolls to carry the increased loads and speeds. And without adequate seals, scale, water and abrasive material could readily enter the bearing chocks.

Various grease companies, working with mill operators, developed extreme pressure grease to the point where it worked satisfactorily under the new loading conditions. But the problem still to be beaten was keeping the lubricant free of abrasives carried in by high pressure water sprays. Early attempts to improve seal effectiveness centered around breaking up the direct force of the water.

Early Sealing Developments—One of the earliest of these attempts by mill builders consisted of turning labyrinth grooves on the inside diameter of bronze rings, making the ring sectional with a garter spring on

Fig. 1—John Crane roll neck seal incorporating latest features of end face sealing. A—Synthetic floating seat ring, B—Cast iron floating seat, C—Lapped sealing faces, D—Composition washer, E—Synthetic rubber "O" sealing ring, F—Inner steel spring holder, G—Coil springs calibrated to very close tolerance, H—Outer steel spring holder, I—Cap screw and holding lug. Seal illustrated is for 22½-in. roll neck

Fig. 2—Labyrinth closure for plain bearing mill of the earlier mill stands

Fig. 3—Antifriction bearing installation of the 1929 period using a stuffing box arrangement in combination with labyrinth grooves in the gland

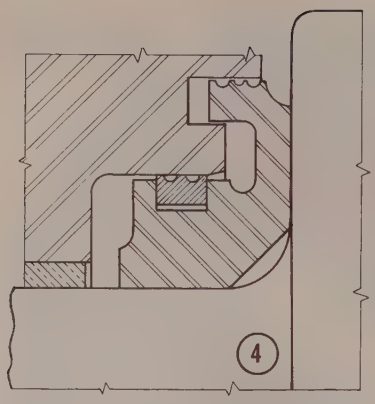


Fig. 4—Oil pressurized plain bearing with piston ring sealing arrangement

the outside diameter. In some cases a boot or shroud was installed to deflect mill scale and water away from the seal. This development was made early in 1929.

The conventional stuffing box arrangement wasn't overlooked in the attempt to attain effective sealing. Felt, flax or semimetallic packings were frequently used along or in combination with different arrangements of labyrinth grooves.

With introduction of the oil type bearing which followed shortly, new problems in sealing arose. At first, oil-type bearing manufacturers followed the general seal trend of the grease lubricated bearing. And it wasn't long before the operator became interested in various designs of seals other than the type originally furnished by mill builders. One method of effective sealing, tried in 1930 in conjunction with oil-type bearings, made use of piston rings in multiples. They were held in place by grooves in the sleeve, and contacted the cast iron surfaces in the bearing chock and cover plate.

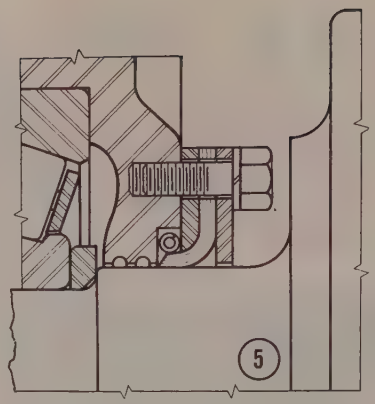


Fig. 5—Antifriction bearing of the late 1930 period showing lip and garter spring combined with labyrinth grooves

Early in 1930 the first attempts at using a lip type seal were begun. Early experiments usually included labyrinth grooves of some design, and

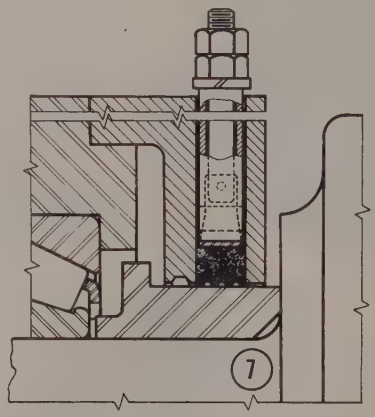


Fig. 7—Antifriction bearing installation using clock spring take-up. Flax sealing member included a babbitt face

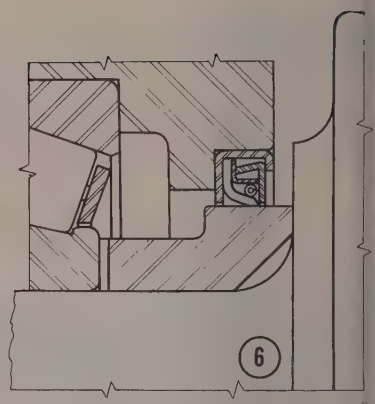


Fig. 6—Antifriction bearing assembly of 1931 period using lip type seal. Illustrated is a single unit mounted to keep scale and water out of the bearing

lip pressure was applied by means of garter springs. It was during this phase of roll neck seal development that the lip-type seal, as it is known today, was first introduced. In its early application to roll neck sealing it was just a large version of the lip-type seals used in tractor and automotive industries. A garter spring around the sealing agent was used to hold the lip in contact with the neck, sleeve or thrust collar.

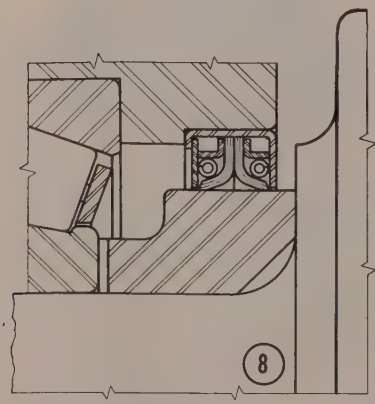
Difficulty Experienced In Packing—Still another arrangement made use of a babbitt or lead face with flax backing. The sealing member was supported by means of a clock spring around the flax and was adjusted by an anchor bolt which had an adjustable sleeve to hold the spring to a circle. This set-up prevented a bulge in the sealing member. It worked well for a short time, but since it was difficult to repack with ordinary packings it fell out of popular use.

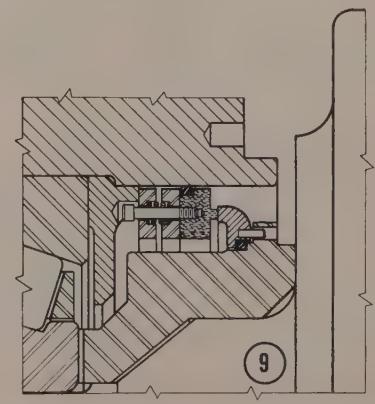
One sealing arrangement combin

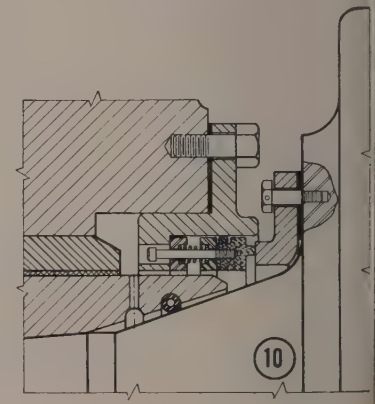
Fig. 8—Antifriction bearing using a dual lip type seal with garter spring tension on the member

Fig. 9—John Crane roll neck seal installed on back-up rolls in four-stand tandem mill.

Fig. 10—Back-up roll bearings showing vertical roll neck seal installed on a four-high mill







ing two lip type seals, was developed in 1932 and was universally referred to as the double lip type. An improvement on this sealing agent made use of multiple finger springs, but, like others of the time the double lip type seal still lacked efficiency and dependability under many operating conditions.

Of the several types of seals installed on mills, the lip type alone has survived in popularity. This is due largely to the fact that it is relatively a low cost installation and readily replaced. However, it has faults of many of the others—easily damaged, fragile, and not effective under all conditions. It was originally developed for mass production of automobiles under operating conditions which have no parallel in those of high speed steel mills. In other words, it was simply a small shaft seal built on a large scale.

Oil Pressurized Plain Bearing—Although disadvantages and ineffectiveness of all of these sealing methods were apparent, it wasn't until the advent of the oil pressurized plain bearing that new developments in roll neck sealing were actually needed. Securing a seal which would maintain these pressures with a minimum of oil loss and still keep water from contaminating the system required different seal designs. New versions of dual lip-type seals, along with piston rings and oil breaker rings, were introduced which did a much better sealing job. However, rugged mill conditions still precluded top sealing performance.

During war years, other materials for sealing members were introduced to replace various treated leathers and other compositions which had always been used. These new mateials performed better on high speeds than the old materials. But they did not solve problems which were caused by the basic exigencies of high speed steel rolling mills. None of the above applications could compensate for vertical movement of roll neck and other looseness in the bearing assembly. In most instances, too, the horizontal point of contact on neck or sleeve left a groove which eventually destroyed effectiveness of the horizontal seal.

Actually, seals on roll necks were all a "hand down" from other industries. The bronze ring labyrinth groove was used on railroad equipment many years before its application to the high speed mill, under a vastly different type of operating condition. The lip type seal originally became popular with mass production of automobiles under operating conditions which have no comparison with the modern high speed mill. It's doubtful if very much engineering skill, steel mill experience or study went into design of roll neck seals until very recently.

End Face Sealing Offered Solution—Seal designers had to eliminate leakage, lubricant contamination and scuffing of necks and sleeves. The logical path for their efforts was an investigation of possibilities of sealing in the vertical plane with an end face type of seal. Design engineers of the Crane Packing Co., Chicago, channelled their efforts in that direction several years ago. They produced something entirely new and radically different. The "John Crane" roll neck seal, as it is known, was designed for a specific service. It's not a hand down from another industry, not a big shaft seal taken from the automobile and tractor field.

This new development seals in the vertical plane, and is positive at all times. It is a self-contained unit, flexible enough to take care of neck deflection, durable enough for most severe mill service. Multiple spring arrangement provides for endwise movement of the roll, without taking any mill thrust load.

There are two general types of bearings used on mills of modern de-

sign; namely, the oil type and the anti-friction type. This new seal is particularly adaptable to both of these. In either case lubricant must be kept in, while at the same time, water and all foreign matter must be sealed out. Vertical sealing of this end face type is capable of holding under any condition because pressure on the sealing member is balanced.

The vertical seal has advantages over any previous seal in assembly of the bearing and mounting on the roll. Former seal developments required careful lining up before the heavy seal was slid on the roll neck. Design of the end-face type eliminates the delicate alignments of the various members. In addition, there are no lips to fold under during the mounting.

Antifriction bearings generally use an extreme pressure grease for lubricant which must be capable of carrying a high load. Here effective sealing is very important, because if water gets into the grease, its load carrying capacity may be lowered to the point where the bearing will fail or become damaged by partial failure. The new end face type of seal is ideal for this application. It seals under neck deflection, and does not leak as a result of looseness in the chock, within bearing, or on neck.

This new roll neck seal has been in actual operation in high speed steel mills for over two and one-half years. Every problem of high speed steel mill sealing has been successfully met and overcome. The end face type seal has distinct advantages: It is built to seal under specific operating conditions; parts are interchangeable; it is easy to install or disassemble; the life is extremely long; there is practically no maintenance; and it is easy to mount complete in or to the bearing chock. Results are readily apparent: Increased bearing life, longer roll life, no loss of lubricant, saving of strip from loss by stain, and cleaner and safer mills.

Battery Maintenance

(*Concluded from Page 81*)

the vent-well in the cover. The addition of an excess quantity of water, with the idea of prolonging the period between regular water additions, results only in excess overflowing during charging, thus causing loss of electrolyte and a dirty battery.

It is normal for the electrolyte level in a battery to decrease very gradually with use. This decrease is caused by the evaporation of water from the electrolyte. Rapidity of decrease will depend upon how much the battery is used and upon how much charge it receives over and above what it requires. Normally, a battery does not require water more often than once in 1 or 2 weeks when it is in full cycle service.

Only water that is known to be suitable for storage batteries should be used. It should be pure and free from any contamination. Generally, distilled water or condensate water is suitable. All the larger battery companies will analyze water samples at no charge to the user. Water should be submitted in clean containers of glass, plastic or porcelain with cork, glass or rubber stoppers.

Correct Charging—It is important that batteries be charged correctly. Improper charging is one of the most prevalent avoidable abuses to storage batteries. The subject is quite broad and one which requires an article in itself for complete coverage. Suffice it here to advise strict adherence to instructions of truck, battery, and charging equipment manufacturers.

Specific gravity and voltage of each cell should be checked and recorded at least once every 3 months, but preferably once a month. This inspection should be made after an equalizing charge. (An equalizing charge is an extra 3 or 4-hour charge at a low rate given periodically after a normal charge to make sure all cells are in a fully charged condition.)

The following are five reasons accounting for specific gravity and voltage deviations between various cells.

1. Spillage of electrolyte, replaced by water.
2. Acid erroneously added to increase specific gravity of cell instead of properly charging it.
3. Loss of electrolyte in pilot cell due to hydrometer readings; replaced by water.
4. Broken jars leaking acid.
5. Shunt within cell.

Records of cell inspections should be filed so that the present state of the entire battery can be compared with its conditon at the previous inspection. In addition, records of all other maintenance activities should be made and filed to form a case history of the battery.

This is an important part of maintenance since it enables the engineer to note which batteries are being abused or are wearing out and steps can be taken to correct abuses or replace units in time to prevent production stoppages. From these records, troubles in operating equipment, charging equipment and charging schedules often can be diagnosed. Also, the men in direct contact with battery maintenance are more conscientious if they are required to record such data as date of each charge; time, amperes, and specific gravity at beginning and end of charge; addition of water, etc.

During long periods of inactivity, batteries should be fully charged, checked monthly, and a freshening charge given to those batteries which do not remain fully charged.

Repairs—Repairs should be made as soon as it is known that they are required. Batteries which have either broken covers or broken jars should not be continued in operation. After a cell is repaired it should be given a charge to make up for that loss which occurred when the element was exposed; after the cell is fully charged the specific gravity should be adjusted to the correct normal value. It is sometime advisable to have spare cells, so that the spare cell may be installed in the battery while another cell is being repaired. This makes it possible to give the repaired cell a complete charge and to adjust the acid to the correct value before the cell is placed back in service. If the cell was fully charged it should be placed in the battery after the battery has been recharged.

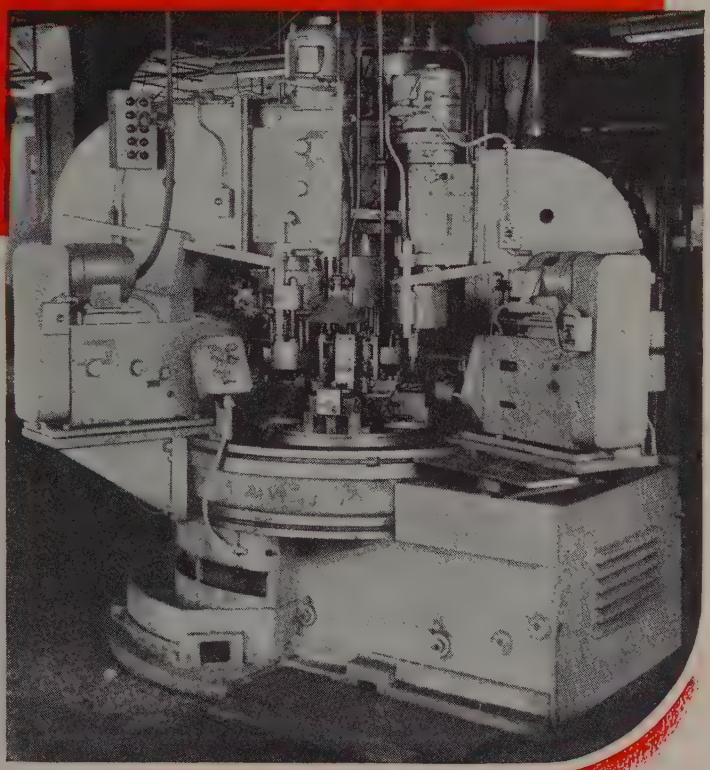
One or more persons engaged in truck maintenance should be well-versed in battery technology. Battery maintenance should be under his (or their) direct charge; no unauthorized employee should be allowed to service batteries. From time to time the larger battery manufacturers conduct training courses in battery care and maintenance for employees of industrial organizations.

The rules discussed here apply whether the plant has one truck or a diversified fleet of 100 or more. They will help the supervisor of the well-planned veteran shop as well as the owner of a new truck system.

—o—

Diversified collection of end products finished in rhodium was exhibited at Industrial Finishing Exposition in Atlantic City, N. J. by International Nickel Co., New York. Rhodium is of the platinum group of metals which are recovered during nickel and copper refining operations. Although rare and costly, the simplicity of plating operations, plus ability to do the job with a remarkably thin deposit, brings unit cost into reasonable range and no longer confines its use to jewelry.

From Century's Complete Line It Was Easy to Select 7 DIFFERENT Century MOTORS to Drive This Automatic Drill Press



The automatic drill press shown here is equipped with the following standard Century motors:

1 — one horsepower 1735 RPM horizontal motor on a cross feed

1 — one horsepower 1735 RPM vertical motor on a vertical feed

2 — one horsepower 1155 RPM horizontal motors on cross feeds

1 — one and one-half HP 1155 RPM horizontal motor on cross feed

1 — one horsepower 3500 RPM vertical motor on vertical feed

1 — two HP 1740 RPM vertical motor on vertical feed

1 — two HP 1155 RPM horizontal motor rotating the circular table

The correct Century motor for your job supplies the *right* amount of power and starting torque at the right speed combined with the *right* frame mounting and right protection from surrounding atmospheres.

Century's wide range of types and kinds of electric motors in sizes from 1/6 to 400 horsepower can simplify complicated electric power problems.

Specify Century motors for all of your electric power requirements.

Popular types and standard ratings are generally available from factory and branch office stocks.

CENTURY ELECTRIC COMPANY
1806 Pine St. • Saint Louis 3, Missouri

-600

OFFICES AND STOCK POINTS IN PRINCIPAL CITIES

metal, the fluxes are shoveled in by hand through side doors from which skimming is done by the use of long handled rabbles. Skimmings of dross fall into wheeled buggies. The skimming is done from floor level and removes iron as well as such oxides as are trapped by the blanket of flux. After the entire charge is melted, but before any metal is run from the furnace, the temperature is raised and the molten metal is well mixed to insure reasonable uniformity and so that when test billets are cast for analysis, they will be truly representative of the charge. Sample ingots are then cast and sent to the laboratory for analysis.

While awaiting this report, however, the furnace foreman and plant metallurgist examine the ingots visually. On this basis, to save time, refining may be started at once.

Refining Process Started

Elimination or reduction or impurities such as iron, aluminum, silicon and manganese below specification limits is accomplished by converting them into oxides or other insoluble metallic compounds by means of fluxes. In either case, these metallic compounds are lighter than the molten metal and float to the top where they become entrapped in the slag which is removed later by skimming with iron rabbles. Elements such as antimony cannot be removed economically and, if above specification limits, they must be reduced by dilution with metals containing little or no antimony.

As a rule, major constituents can be adjusted by the proper selection of scrap. High tin alloys such as "G" metal, gear bronze, however, often require the addition of pig tin or other primary metals because of the limited quantity of high grade scrap suitable for making such alloys. Lead or zinc adjustments can be made without difficulty by the addition of materials high in these elements or, if necessary, by the addition of the primary metals.

On the other hand, if copper, tin, lead or zinc are above required limits they must be reduced by dilution with scrap of known composition or by adding primary metals or stock ingots of known analysis. Zinc can be removed also by volatilization, especially since the furnace stack in this plant discharges into a bag house where the zinc oxide is recovered. In each case, the procedure is determined by the plant metallurgist so that the operation is economical and that the quality of the metal is consistent with the special specifications which the company has developed for use by the industry.

To arrive at desired results, samples are checked at frequent intervals during refining until they show that the batch is ready for pouring. The metal is carefully skimmed and casting is started by making an opening in the fireclay tap hole just below metal level. Fireclay is cut away gradually as metal level lowers and casting is usually continuous until the furnace runs dry. Ingots are taken for sampling at the start and at the end of each 5,000 pound run off.

Casting Ingot Molds

From the furnace, metal runs through a launder to a rocking trough-like ladle hung on trunnions and having four spouts so that four ingot molds on a chain conveyor are filled at each tilting. The ladle is frequently skimmed and so is each mold when filled. Tilting is controlled by an operator in a booth that protects him from radiant heat. He also controls conveyor motion and does not advance the conveyor until signaled by the operator at a knockout station that molds there are clear.

Either rough top or smooth top ingots are cast, depending upon customer specifications, but the rough top type is recommended as the very thin oxide coating formed thereon is considered beneficial in subsequent melting. If smooth top is specified, powdered charcoal is sprinkled on the hot metal surface immediately after skimming each mold. Shortly after pouring, molds are carried under a water spray by the conveyor to accelerate cooling before reaching the knockout.

Each mold is pivoted to the conveyor at its outer end and is raised at the knockout station by a hook operated manually. After turning 90 degrees about the pivot, the mold strikes a heavy floating steel bar. The impact loosens the ingot which drops into a water quench. An inclined chain conveyor which is at the bottom of this quench picks up the ingot and elevates it to an inspection table.

Each ingot is examined on this table and, if not perfect, is rejected and is dropped into a skip for remelting in the furnace. Ingots that pass inspection are stenciled with the heat number and are piled on skids for removal to stock rooms for shipment.

It is significant that, for every heat, a complete log is kept to show in detail precisely what goes into the furnace and what comes out in the form of ingots. This record includes each lot of scrap and other metal, as well as the fluxes and the oil used for firing. There is also space for a record of all labor. From these data and records of the cost of each lot of material, the total cost of every heat is precisely computed and is employed, not only in cost accounting, but to keep executives in charge informed upon factors affecting costs.

Procedures as above outlined apply primarily to the 50-ton furnaces which account for most of the total output of copper base alloys produced at this plant. Most of the remaining tonnage is processed in U. S. rotary furnaces that are set on trunnions for tilting when pouring into trolley ladles from which ingots are poured. These furnaces are mounted so that charging and skimming can be done at floor level but the furnaces can be elevated when pouring is done.

Furnaces of the U. S. type have a capacity of 5,000 to 10,000 pounds and are used chiefly to produce special alloys required in moderate quantities—master alloys, such as silicon-copper, manganese-copper (so-called "hardeners"); nickel silver, bell metal or the like. A variety of crucible, electric and specially designed furnaces are also used for special alloys.

Refining in the small furnaces is avoided when possible because of the inconvenience and difficulty. Charges are made up largely from carefully selected materials of known composition. Chemical and metallurgical control is the same as for the large furnaces and refining is done, if so dictated, by the chemical analysis.

Copper-Iron Powder Has Low Sinter Shrinkage

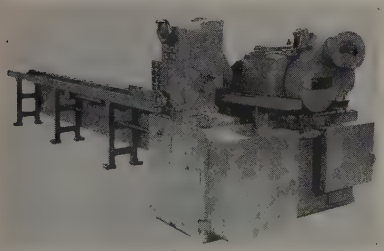
A copper-iron powder consisting of high grade iron particles with a partial coating of pure copper is being offered by Charles Hardy Inc., New York. Supplied with a copper content the powder is said to have the following advantages: No blending is required, no segregation, high green strength and low sinter shrinkage.

At a pressure of 30 tons per square inch, the compression ratio was 2.2:1 and the sinter dimensional change was minus 0.25 per cent. Tensile strength was 35,100 pounds per square inch and the rockwell was 40 B. At 50 tons per square inch, the compression ratio is 2.4:1, the sinter dimensional change minus 0.09 per cent, the tensile strength 48,000 pounds per square inch and the rockwell hardness 50 B.

New Products and Equipment

Circular Sawing Machine

Square or round stock up to 4 inches may be cut with the No. O-H circular sawing machine announced by Motch & Merryweather Machinery Co., Penton Bldg., Cleveland 13, O. Cut-off length is set on a built-in scale with micrometer adjustment on the intake side of the machine. Cut off pieces are held to very close



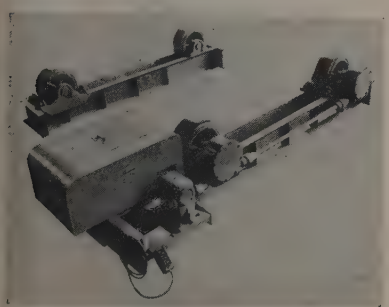
tolerances on either automatic or manual bar feed. A single hydraulic pump supplies pressure for automatic stock feed, stock clamping and head stock feed.

All operations are sequenced hydraulically for safety of tooling. The saw head has four blade speeds selected by a gear shift lever, with a choice of speed ranges for either ferrous or nonferrous metals. The impeller type coolant pump is mounted outside the machine.

Check No. 1 on Reply Card for more Details

Turning Rolls

Capable of carrying heavier loads with less handling and giving longer, trouble-free operation, the improved line of welding turning rolls, built by Ransome Machinery Co., Dunellen,



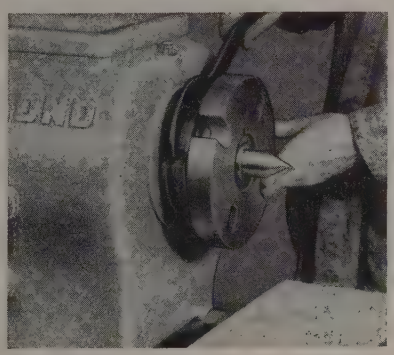
N. J., helps produce better and quicker welds by allowing all welds to be made in a downhand position. Features include self-aligning antifriction bearings on both power and idler rolls of larger sizes, a lowered drive mechanism permitting unobstructed loading from either end and a combination steel and bronze worm wheel.

The bronze worm wheel has been reinforced against stresses resulting from heavy loads by the addition of a steel hub and center to which the bronze rim is bolted. Vessel to be welded is placed on the rollers and rotated around to the welder or automatic welding head at the desired welding speed. Self-propelled turning rolls on four-wheel carriages are also available.

Check No. 2 on Reply Card for more Details

Spindle Nose

Standard taper key drive spindle noses are now being furnished in place of the threaded type on all LeBlond Regal lathes, according to R. K. LeBlond Machine Tool Co., Cincinnati 8, O. The changeover has been effected without sacrifice of cen-



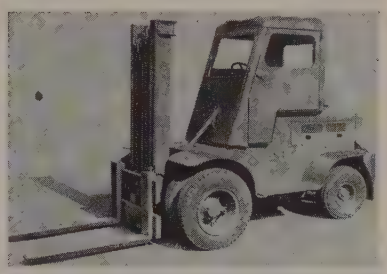
ter distance capacity. Use of this type of spindle makes it possible to interchange tapered chucks and face plates among LeBlond Regal, heavy duty and several other different types of lathes.

Advantages coming from the use of this type of spindle nose include: Easier and faster mounting of chucks and face plates; safety lock-tight mountings which keep chucks and face plates from flying off; greater accuracy, better wear, longer life; and low accessory inventory as special chucks and face plate are no longer required for Regal lathes.

Check No. 3 on Reply Card for more Details

Fork Truck Cab

Weather tight cabs for Yardlift-40 and Yardlift-60 model pneumatic tired fork trucks built by Clark Equipment Co., Battle Creek, Mich., offer driver protection on outdoor handling operations. Cab is built of heavy gage steel, with ample windows providing side and forward vision. The glareproof plastic roof window provides sufficient visibility for high tiering. Cab is insulated for driver comfort. Accessories available in-



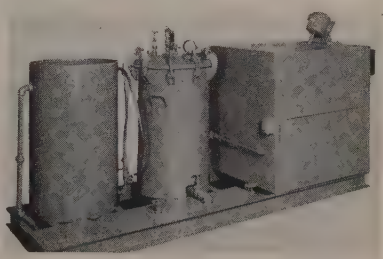
clude windshield wipers, heater and windshield defrosters and air-cushion seats.

Check No. 4 on Reply Card for more Details

Porosity Eliminator

Combination vacuum and pressure unit for eliminating porosity in pressure castings, developed for manufacturers who desire to seal castings without fixtures is the model 30 Mogullize, developed by Metallizing Co. of America, 3520 West Carroll Ave., Chicago. Machine is a high efficiency circulator for use with a metallic impregnating solution known as Mogul Cast Seal type B. Affording fast impregnation of castings on a volume basis, the cost per casting is low.

As pictured, the machine consists of a vacuum pump, sealing tank, sup-



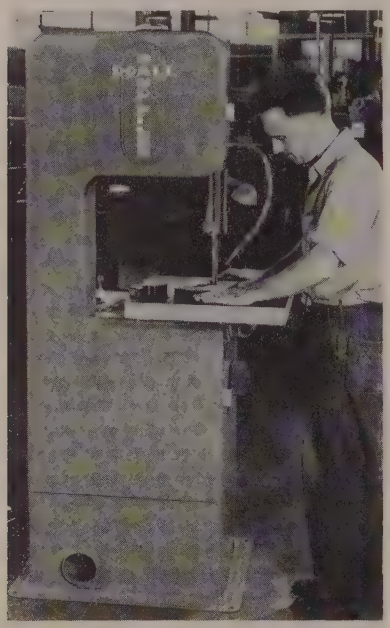
ply tank and agitator, heating elements, high pressure air connector, rinsing tank and city water supply and drain connections. Top portion of the large square tank is a 54-gallon supply container with two electric heating elements and an agitator with a 1/3-horsepower motor. Castings are placed in thermostatically controlled tank with water and the impregnating solution. First a vacuum is drawn and held, then air pressure of 90 pounds is put into the tank and held for 15 minutes. Cast-

ings are removed and placed in left tank for rinsing.

Check No. 5 on Reply Card for more Details

Band Filing Machine

File finishing nine times faster than hand filing is a reality with the new 7-inch capacity floor model band filing machine built by DoAll Co., Des Plaines, Ill. It may be operated by a person either sitting or standing with its 39-inch table height. Machine frame is of unit welded steel



construction, enclosing all moving parts. A 1/2-horsepower motor drives an enclosed worm reduction gear governed by a Speedmaster variable pulley. Cutting speed may be controlled between 50 and 250 feet per minute.

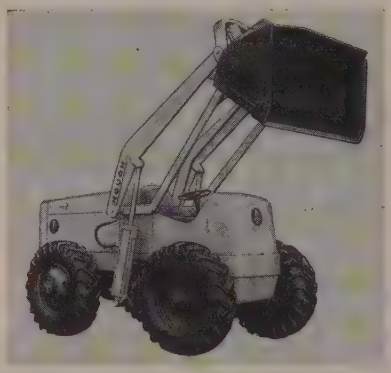
Machine table is 18 inches square. A built-in air pump with chip blowing nozzle on the end of a flexible tube makes guide lines easier to follow. Tilting mechanism permits level, miter or angle cutting. Band length is 120 inches and widths of 1/4, 3/8 and 1/2-inch are offered in six types of cut and with flat, oval or round shape.

Check No. 6 on Reply Card for more Details

Tractor-Shovel

Featuring a four-wheel drive and a power boosted steering mechanism, the new model HM Payloader, a product of Frank G. Hough Co., 801-L Sunnyside Ave., Libertyville, Ill., has a bucket capacity of 1-1/2 cubic yards and a static loading capacity of 6000 pounds. The 76-horsepower engine, with the four-wheel drive and 14.00-24.00 road builder tires on all four wheels provide the power, traction and flotation necessary for off-road operation.

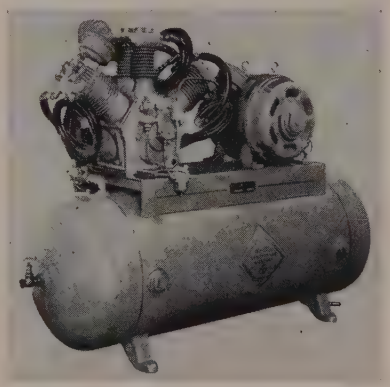
Maneuverability is enhanced by the power steering on rear wheels, short wheel base and fully reversing transmission with four speeds in either direction. Bucket raising and lowering and dumping and closing are accomplished by double-acting hydraulic rams. Bucket booms are designed to give a powerful digging action to the bucket independent of tractor's forward motion. Tractor is capable of speeds up to 16 miles per hour. Bulldozer blade, crane hook and snow plow attachments will be available.



Check No. 7 on Reply Card for more Details

Air Compressors

Announced by Air-Flo Compressor Co., Akron 7, O., is an air compressor that can "grow" to meet expanding air requirements. The basic compressor uses 18 principal parts to construct a line of 48 different models of 1, 2, 3, 4 or 6-cylinder pumps in single or two-gage types. All parts are interchangeable from the smallest to the largest pump.

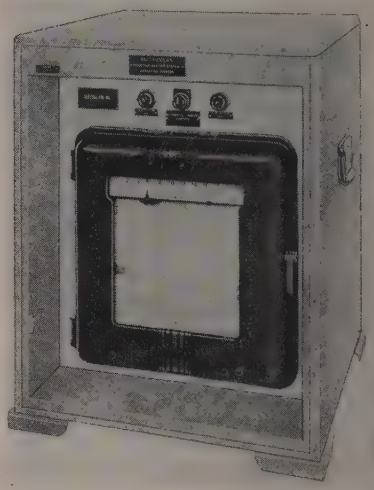


Complete interchangeability permits carrying a small basic inventory of replacement parts. Compressors are available for shipment in sizes from 1/2 to 40 horsepower with 2.5 to 275 cubic feet per minute capacity at 30 to 300 pounds pressure in vertical, V-type or side angle construction. Cylinder arrangements are single, twin or radial staggered.

Check No. 8 on Reply Card for more Details

Portable Pyrometer

Offered by Electric-Arc Inc., 152 Jelliff Ave., Newark 8, N. J., is a portable electric pyrometer recorder and/or controller, so arranged that six points of heat to 2200°F can easily be recorded or controlled. Instrument is fast acting and precise and arranged for simple electrical off-on control. It may be used for semiautomatic program control, for heat cycles or completely automatic heat cycle program control.



Because the unit is portable, it is helpful in the control of temperature of heating processes and set-up and for experimental operations in the field, shop and laboratory, for example. Weighing 100 pounds, the instrument's dimensions are 30 inches high, 24 inches wide and 22 inches deep. In the welding field, it can be utilized with such equipment as Smith-Dolan induction heaters for preheating before and stress relieving after welding.

Check No. 9 on Reply Card for more Details

Rotary Press

Powder metal parts may be produced at high producion rates with the model No. 230 thirty-ton rotary press announced by F. J. Stokes Machine Co., 5900 Tabor Rd., Philadelphia 20, Pa. From 65 to 91 powder metal parts per minute may be produced, depending upon the pinion used. Two

"With GULF Soluble Cutting Oil

we increased plastic tool handle production over 100%"

The Foreman of Forsberg Manufacturing Co., Bridgeport, Conn., (left) consults with a Gulf Lubrication Engineer on results with Gulf Soluble Cutting Oil in machining plastic tool handles.

"We heard such fine reports on Gulf Soluble Cutting Oil for metals that we decided to act on the recommendation of a Gulf Lubrication Engineer and use it for machining plastic tool handles." says this Foreman. "Results have been outstanding: A big increase in production, since we were able to speed up the machines; better finishes, since with Gulf Soluble Cutting Oil no hot water wash is required; and fire hazard eliminated."

Gulf Soluble Cutting Oil meets today's demands for a cooling and lubricating fluid which will do a better job over a wide range of turning, milling, grinding, and many other machining operations.

For further information on Gulf Soluble Cutting Oil—and for one of Gulf's practical slide-rule-type calculators, which will help you maintain desired soluble oil concentrations—send the coupon below.

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- ☐ Further information on the new Gulf Soluble Cutting Oil.
- ☐ Practical slide-rule-type calculator for help in maintaining desired soluble oil concentrations.

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Company.....

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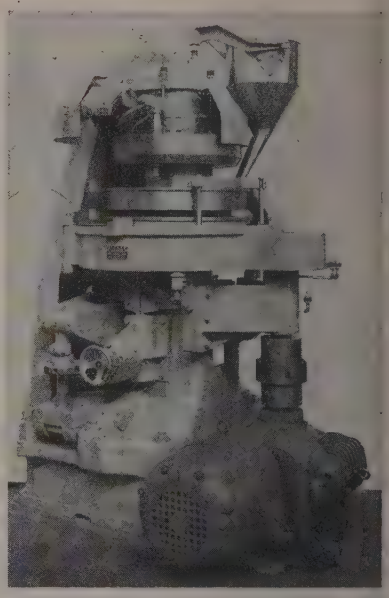
sets of pinions are furnished with the press. Normally equipped with a 12-station head, production of parts up to 2-1/2 inches in diameter with a die fill of 4-1/4 inches is possible.

Flanged parts can be produced through the combination of a mechanism for moving the upper pressure

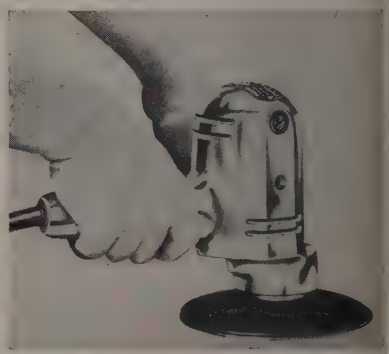


roll up or down in a vertical plane and a special arrangement of cams. Powered by a 20-horsepower constant speed motor, the press applies pressure from both above and below simultaneously.

Check No. 10 on Reply Card for more Details

Portable Disk Grinder

The D-6 multipurpose tool, designed by Porter-Cable Machine Co., 171 North Salina St., Syracuse 8, N. Y., for grinding, polishing, drilling and cutting off by a change of attach-



ments, has a 5/8-inch shaft and can be used vertically, overhead and in cramped spaces. It will drill metal up to 1/4-inch in diameter and wood up to 1/2-inch. The drill chuck can be used for standard attachments as


THE Preformed Challenge
Here's a CHALLENGE to the few who have not used Preformed Wire Rope:
•
Put Preformed to work on your job.
See for yourself if it isn't
• easier to install
• safer to use
• longer lasting
. . . and see if it doesn't
• COST LESS TO USE
That's the Preformed challenge

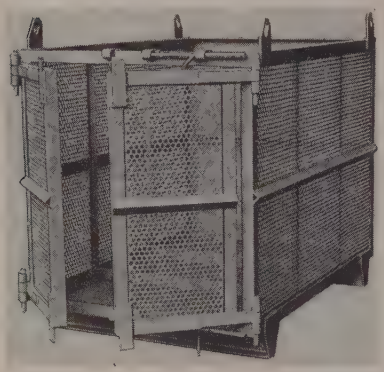
hole saws, wire brushes, cup grinders, abrasive points, etc.

A 7-inch silicon carbide grit infused disk is used edgewise to cut through steel and other metals. By attaching a disk, welds can be blended, castings deburred and brass and other metals polished. A bearing takes heavy end thrusts under pressure of sanding, grinding or drilling. A guide grip can be attached to either side of the machine.

Check No. 11 on Reply Card for more Details

Immersing Basket

Phillips Mine & Mill Supply Co., 2227 Jane St., Pittsburgh 3, Pa., is producing an easily conveyed immersing basket, fabricated of Cor-Ten high tensile corrosion resisting steel,



making it resistant to acid pickling solutions. The compact basket can be transported either by crane or fork lift truck.

Basket is of heavy duty construction, made for long, continuous service. It is supplied in any size to meet individual and varying specifications.

Check No. 12 on Reply Card for more Details

Diesel Engine

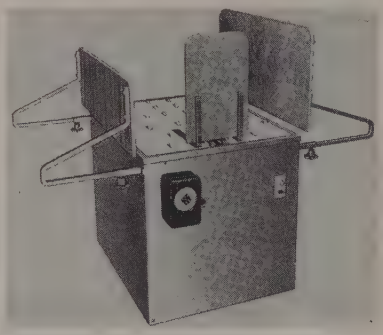
With ratings up to 1200 horsepower designed for extremely high working pressures, the new 9 x 12 (bore by stroke) diesel engine, built by Lima-Hamilton Corp., New York, N. Y., is applicable for railroad motive power, electric power generation, mechanical power take-off, etc. Made at the company's Hooven, Owens, Rentschler Co. Division, Hamilton, O., the engine is a vertical, 4-cycle design, built with six and eight cylinders, normally aspirated or supercharged.

Supercharged models have an intercooler. All engines are single acting, solid injection. The bore and stroke of 9 and 12 inches provide ample capacity to assure longevity and minimum maintenance without sacrifice of space. Engines use jumpers between cylinder block and cylinder head to prevent any leaks developing which would permit cooling water to enter the combustion space. Intake and exhaust valves are all the same size, with valve gear arranged so it does not have to be removed for tightening the cylinder heads.

Check No. 13 on Reply Card for more Details

Counter and Stacker

Objects coming off the production line may be counted and stacked at speeds up to 200 per minute with the automatic counter and stacker an-



nounced by Superior Punch Press Co., 3610 Superior Ave., Cleveland, O. After counting the objects are stacked in piles and the stack transferred to a conveyor system.

Machine will handle pieces from 9 to 82 inches wide. The counted stack is transferred in 1/3-second. There is no setup time involved, the machine being ready for operation by plugging into an electric line.

Check No. 14 on Reply Card for more Details

• • •

SOLDER: Solderzit is a high-strength metal solder that contains its own flux. To use, merely clean the surfaces to be joined, apply the solder and heat with a soldering iron, torch or match flame. It is made by L & R Mfg. Co., Arlington, N. J.

Check No. 15 on Reply Card for more Details

SOLDERING IRON TIP: Cal-Perry Corp., East Orange, N. J., announces availability of an improved, patented soldering iron tip for use with electric soldering guns. The unit is a chromium-plated copper electrode with only the surface of tip exposed to prevent heat loss.

Check No. 16 on Reply Card for more Details

FILTER: The C T Clarofier, produced by W. G. B. Oil Clarifier Inc., Kingston, N. Y., is a multiple purpose filter for lubricating or fuel oil clarification in marine and stationary engine installations, or in machine tools, using cutting oils. Unit has a replaceable filter cartridge which can be changed quickly and without use of tools.

Check No. 17 on Reply Card for more Details

ARC WELDING ELECTRODE: A new low-hydrogen type coated electrode designed to prevent underbead cracking in weld deposits is offered by Air Reduction Sales Co., New York, N. Y. Designated as Airco No. 394, it operates on either alternating or direct current and is designed to give welds of 100,000 pounds per square inch.

Check No. 18 on Reply Card for more Details

SINTERED CARBIDE ALLOY: Carbide Alloys Division of Allegheny Ludlum Steel Corp., Pittsburgh, Pa., has developed a sintered carbide alloy designed for high speed planer tools. Known as Carmet Grade CA-51, the blanks can be supplied for planers using either the "clamped in" or brazed type blanks.

Check No. 19 on Reply Card for more Details

VOLTAGE STABILIZERS: Three new voltage stabilizer units have been added to the line of automatic stabilizers of General Electric Co., Schenectady, N. Y. Units are 115 volt, 60 cycle designs in 15, 25 and 50 volt-ampere ratings. They provide a steady output of 115 volts (plus or minus 1 per cent for fixed, unity power factor loads) with input voltages ranging from 95 to 130 volts.

Check No. 20 on Reply Card for more Details

SELF-LOCKING NUT: Designed to improve and speed the crating of office equipment and similar heavy objects, a one-piece Speed Nut has been developed by Tinnerman Products Inc., Cleveland, O. It is a self locking nut which has a prevailing torque and when tightened in position, has an exerted pressure on threads to withstand vibration. It is made in two sizes, 5/16 and ¼ inch.

Check No. 21 on Reply Card for more Details

FOR MORE INFORMATION
on the new products and equipment in this section, fill in a card. It will receive prompt attention.

Market Summary

STEEL SUPPLY— No break in tight steel supply conditions appears in sight. Demand continues as strong as ever despite reported easing in manufacturing operations in some lighter durable goods. However, whatever slack appears is quickly taken up so that no noticeable softening in pressure on the mills has developed. In fact, lack of steel is restricting manufacturing operations, last week for instance, Briggs Mfg. Co. and Chrysler Corp. being forced to operate on curtailed schedules because of a shortage of sheets. So pressing are trade requirements, demand for conversion ingots is on the increase, an area of the market where a slowing in demand will first develop.

CERTIFIED TONNAGE— Whatever faint hope existed in consuming circles for a larger supply of "free" steel early next year, it vanished last week with extension of five current voluntary allocation programs for a period of six months beyond the Feb. 28 expiration date of Public Law 395 under which voluntary allocations are set up. These extensions are in addition to those previously approved for three national defense programs.

ALLOCATIONS— In light of what appears to be an about-face on voluntary allocations by the Steel Products Advisory Committee, it would seem generally, consumers stand little chance of obtaining supply relief through elimination of certified tonnage. If anything, the chances appear good certified tonnage may take an even larger bite of overall supply next year in view of the steel committee's approval of a mining machinery steel allocation, and its willingness to consider a program for grain storage bins, and the possibility of adding to allocated tonnage for the oil and gas industries. What significance to attach to this apparent change of heart toward voluntary allocations is difficult to determine, but some consumers read into it an effort to forestall mandatory allocations, which it is expected in Washington, will be granted President Truman by the 81st Congress should he ask for such.

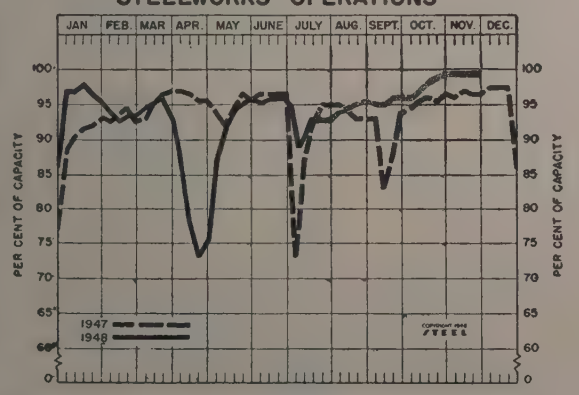
PRICES— Individual producers continue to effect price adjustments, both in base quotations and in extras. Last week a number of interests announced reductions in galvanized pipe discounts to offset recent increases in the price of zinc, resulting in price increases of $4 to $5 per ton. In flat-rolled galvanized products coating extras were revised by several makers to reflect the zinc boost, resulting in advances of $4 and $4.50 per ton. At the same time a Midwest producer announced a $10 per ton increase in the base price of cold-rolled sheets.

COMPOSITES— STEEL's arithmetical price composite on finished steel advanced last week to $95.50 from $95.05 the preceding week, reflecting the advance on cold-rolled sheets. Other composites held unchanged at $75.75 for semifinished steel, $46.29 for steelmaking pig iron and $43.25 for steelmaking scrap.

PRODUCTION— Steel producers are pushing facilities to the limit. Output in November is expected to establish a new alltime monthly high.

RAW MATERIALS— Producers are hopeful that scrap and pig iron supplies will enable them to maintain operations at the present high rate right through the winter. Currently pig iron supply is improving with several recently idle stacks returned to operation after being down for repairs. At the same time scrap inventories are reported the best in many months. German scrap has been arriving in increasing tonnage over recent months though shipments to the interior have been delayed the past couple weeks by the longshoremen's strike. Whether abandonment last week of a plan to set up a private corporation to serve as a central scrap buying agency in Germany will have any effect on the flow of scrap to this country is problematical.

STEELWORKS OPERATIONS



DISTRICT STEEL RATES

Percentage of Ingot Capacity engaged in Leading Districts

	Week Ended Nov. 27	Change	Same Week 1947	Same Week 1946
Pittsburgh	96	— 1.5	102	57
Chicago	98.5	+ 0.5	95	74.5
Eastern Pa.	95	None	93.5	58
Youngstown	105	None	100	40
Wheeling	95.5	+ 3	86	85.5
Cleveland	96.5	— 2.5	93.5	92
Buffalo	104	None	88.5	51
Birmingham	100	None	103	47
New England	90	None	87	90
Cincinnati	103	+ 4	87	84
St. Louis	84.5	None	78	72.5
Detroit	99	None	92	84
Estimated national rate	99	None	96.5	65.5

Based on weekly steelmaking capacity of 1,802,476 net tons for 1948; 1,749,923 tons for 1947; 1,762,381 tons for 1946.

COMPOSITE MARKET AVERAGES

Arithmetical Price Composites*

	Nov. 27	Nov. 20	Month Ago Oct. 1948	Year Ago Nov. 1947	5 Years Ago Nov. 1943
Finished Steel	$95.50	$95.05	$95.05	$76.09	$56.73
Semifinished Steel	75.75	75.75	75.75	57.20	36.00
Steelmaking Pig Iron	46.29	46.29	46.19	36.38	23.00
Steelmaking Scrap	43.25	43.25	43.25	40.42	19.17

FINISHED STEEL WEIGHTED COMPOSITE†

Oct. 1948	4.14340c
Sept. 1948	4.13446c
Aug. 1948	4.14340c
Oct. 1947	3.45536c
Oct. 1943	2.40831c

***STRAIGHT ARITHMETICAL COMPOSITES:** Computed from average industry-wide mill prices on Finished Carbon Steel (hot-rolled sheets, cold-rolled sheets, cold-rolled strip, hot-rolled bars, plates, structural shapes, basic wire, standard nails, tin plate, standard and line pipe), on Semifinished Carbon Steel (rerolling billets and slabs, sheet bars, skelp, and wire rods), on Basic Pig Iron (at eight leading producing points), and on Steelworks Scrap (No. 1 melting grade at Pittsburgh, Chicago and eastern Pennsylvania). Steel arithmetical composites, dollars per net ton; pig iron and scrap, gross ton.

†**FINISHED STEEL WEIGHTED COMPOSITE:** Computed in cents per pound, mill prices, weighted by actual monthly shipments of following products, representing about 82 per cent of steel shipments in the latest month for which statistics are available, as reported by American Iron & Steel Institute: Structural shapes; plates, standard rails; hot and cold-finished carbon bars; black butt weld pipe and tunes; black lap weld pipe and tubes; black electric weld pipe and tubes; black seamless pipe and tubes; drawn wire; nails and staples; tin and terne plate; hot-rolled sheets; cold-rolled sheets; galvanized sheets; hot-rolled strip; and cold-rolled strip. October, 1948, figure is preliminary.

COMPARISON OF PRICES

Representative market figures for current week; average for last month, three months and one year ago. Finished material (except tin plate) and wire rods, cents per lb; semifinished (except wire rods) and coke, dollars per net ton, others dollars per gross ton. Delivered prices represent lowest from mills.

Finished Materials

	Nov. 27, 1948	Oct. 1948	Aug. 1948	Nov. 1947
Steel bars, Pittsburgh mills	3.45c	3.45c	3.45c	2.90c
Steel bars, del. Philadelphia	3.79	3.79	3.79	3.318
Steel bars, Chicago mills	3.35	3.35	3.35	2.90
Shapes, Pittsburgh mills	3.275	3.275	3.275	2.80
Shapes, Chicago mills	3.25	3.25	3.25	2.80
Shapes, del. Philadelphia	3.48	3.48	3.48	2.954
Plates, Pittsburgh mills	3.50	3.50	3.50	2.95
Plates, Chicago mills	3.40	3.40	3.40	2.95
Plates, del. Philadelphia	3.71	3.71	3.71	3.17
Sheets, hot-rolled, Pittsburgh mills	3.275	3.275	3.275	2.80
Sheets, cold-rolled, Pittsburgh	4.00	4.00	4.00	3.55
Sheets, No. 10 galv., Pittsburgh	4.40	4.40	4.40	3.90
Sheets, hot-rolled, Gary mills	3.25	3.25	3.25	2.80
Sheets, cold-rolled, Gary mills	4.00	4.00	4.00	3.55
Sheets, No. 10 galv., Gary mills	4.40	4.40	4.40	3.90
Strip, hot-rolled, Pittsburgh mills	3.275	3.275	3.275	2.80
Strip, cold-rolled, Pittsburgh mills	4.375	4.375	4.375	3.55
Bright basic, wire, Pittsburgh	4.325	4.325	4.325	3.675
Wire nails, Pittsburgh mills	5.775	5.775	5.775	4.625
Tin plate, per base box, Pitts. dist.	$6.70	$6.80	$6.80	$5.75

Semifinished

Sheet bars, mill	$67.00*	$67.00*	$67.00*	$53.57
Slabs, Chicago	52.00	52.00	52.00	40.18
Rerolling billets, Pittsburgh	59.00	59.00	59.00	40.18
Wire rod ⅜ to ¼-inch, Pitts. dist.	3.775c	3.775c	3.775c	3.05c

* Nominal.

Pig Iron

	Nov. 27, 1948	Oct. 1948	Aug. 1948	Nov. 1947
Bessemer, del. Pittsburgh (N.&S. sides)	$48.08	$48.08	$48.08	$37.913
Basic, Valley	46.00	46.00	43.00	36.00
Basic, eastern del. Philadelphia	50.17	50.17	46.17	38.84
No. 2 fdry., del. Pgh. (N.&S. sides)	47.58	47.58	47.58	37.413
No. 2 fdry., del. Philadelphia	50.67	50.67	46.67	39.34
No. 2 foundry, Chicago	46.25	45.13	43.25	36.00
No. 2 foundry, Valley	46.50	43.50	43.50	36.50
Southern No. 2 Birmingham	43.38	43.38	43.38	34.88
Southern No. 2 del. Cincinnati	49.09	49.09	49.09	38.544
Malleable, Valley	46.50	46.50	43.50	36.50
Malleable, Chicago	46.50	45.38	43.50	36.50
Charcoal, low phos., fob Lyles, Tenn.	66.00	66.00	62.00	46.40
Ferromanganese, fob Aetna, Pa.	163.00	163.00	148.00*	151.00*

* F.o.b. cars Pittsburgh.

Scrap

Heavy melt. steel, No. 1, Pittsburgh	$42.75	$42.75	$42.75	$40.00
Heavy melt. steel, No. 2, E. Pa.	41.50	41.50	41.50	42.40
Heavy melt. steel, No. 1, Chicago	41.75	41.75	41.75	38.75
Heavy melt. steel, No. 1, Valley	42.75	42.75	42.75	39.875
Heavy melt. steel, No. 1, Cleveland	42.25	42.25	42.25	39.625
Heavy melt. steel, No. 1, Buffalo	48.50	48.15	46.56	41.81
Rails for rerolling, Chicago	68.50	65.50	64.13	56.25
No. 1 cast, Chicago	70.50	70.75	70.75	49.00

Coke

Connellsville, beehive furnace	$14.50	$14.50	$14.38	$12.25
Connellsville, beehive foundry	17.00	17.00	17.00	14.50
Chicago, oven foundry, ovens	20.40	20.40	20.40	17.50

FINISHED AND SEMIFINISHED IRON, STEEL PRODUCTS

Finished steel quoted in cents per pound and semifinished in dollars per net ton, except as otherwise noted. Prices apply on an individual producer basis to products within the range of sizes, grades, finishes and specifications produced at its plants.

Semifinished Steel

Carbon Steel Ingots: Rerolling quality, standard analysis, open market, $100-$105 per gross ton. Forging quality $50 per net ton, mill.

Alloy Steel Ingots: $51 per net ton, mill.

Rerolling Billets, Blooms, Slabs: $52 per net ton, mill, except $62, Conshohocken, Pa.; $66, Monessen, Pa.; sales by smaller interests on negotiated basis at $85 per gross ton, or higher.

Forging Quality Billets, Blooms, Slabs: $61 per net ton, mill, except: $68, Conshohocken, Pa., mill.

Alloy Billets, Slabs, Blooms: Rerolling quality, $63 per net ton, mill, except: $70, Conshohocken, Pa.

Sheet Bars: $67 nom., per net ton, mill; sales in open market $110-$115 per gross ton.

Skelp: 3.25c per lb, mill.

Tube Rounds: $76 per net ton, mill; some sellers quoting up to $120 per gross ton.

Wire Rods: Basic and acid open-hearth, 7/32 & ⅜-inch, inclusive, 3.40c per lb, mill, except: 3.65c, Struthers, O.; 3.70c, Worcester, Mass.; 4.05c, Pittsburg, Calif.; 4.10c, Portsmouth, O., Los Angeles; 4.15c, Monessen, Pa. One producer quotes 3.90c, Chicago base. Basic open-hearth and bessemer, not resulphurized, 7/32 to 47/64-inch, inclusive, 3.50c, mill.

Bars

Hot-Rolled Carbon Bars (O.H. only) and Bar-Size Shapes under 3-in. (Base 20 tons one size): 3.35c, mill, except: 3.55c, Ecorse, Mich., Pittsburgh, Monessen, Aliquippa, Pa.; 4.05c, Pittsburg, Torrance, Calif.; 4.10c, S. San Francisco, Los Angeles, Niles, Calif., Portland, Oreg., Atlanta, Seattle; 4.20c, Kansas City, Mo.; 4.25c, Minnequa, Colo.; 5.30c, Fontana, Calif.

Rail Steel Bars: (Base 10 tons): 3.35c, Moline, Ill.; 4.80c, Avis, Pa.; 5.10c, Williamsport, Pa.; another interest quotes 5.35c, mill.

Hot-Rolled Alloy Bars: 3.75c, mill, except: 4.05c, Ecorse, Mich.; 4.80c, Los Angeles; 5.50c, Fontana, Calif.

Hot-Rolled Alloy Bar Shapes: 4.00c, mill.

Cold-Finished Carbon Bars (Base 20,000-39,999 lb): 4.00c, mill, except: 3.95c, Pittsburgh, Cumberland, Md.; 4.20c, Indianapolis; 4.25c, Monessen, Pa.; 4.30c, Ecorse, Mich.; 4.35c, St. Louis; 4.36c, Plymouth, Mich.; 4.40c, Newark, N. J., Hartford, Putnam, Conn., Mansfield, Readville, Mass.; 4.45c, Camden, N. J.; 5.30c, Los Angeles.

Cold-Finished Alloy Bars: 4.65c, mill, except: 4.75c, Monessen, Pa.; 4.85c, Indianapolis; 4.95c, Worcester, Mansfield, Mass., Hartford.

High-Strength, Low-Alloy Bars: 5.10c, mill, except: 5.40c, Ecorse, Mich.

Reinforcing Bars (New Billet): 3.35c, mill, except: 3.55c, Monessen, Pa.; 4.05c, Pittsburg, Torrance, Calif.; 4.10c, Atlanta, Seattle, S. San Francisco, Los Angeles; 4.25c, Minnequa, Colo. Fabricated: To consumers: 4.25c, mill, except: 5.00c, Seattle.

Reinforcing Bars (Rail Steel): 4.65c, Williamsport, Pa., mill; another interest quotes 5.35c, mill.

Wrought Iron Bars: Single Refined: 8.60c, (hand puddled), McKees Rocks, Pa.; 9.50c, Economy, Pa. Double Refined: 11.25c (hand puddled), McKees Rocks, Pa., 11.00c, Economy, Pa. Staybolt: 12.75c, (hand puddled), McKees Rocks, Pa.; 11.30c, Economy, Pa.

Sheets

Hot-Rolled Sheets (18 gage and heavier): 3.25c, mill, except: 3.25-3.30c, Cleveland; 3.30c, Pittsburgh; 3.45c, Ecorse, Mich.; 3.95c, Pittsburgh, Torrance, Calif.; 5.00c, Conshohocken, Pa.; 5.65c, Fontana, Calif.; 6.25c, Kansas City, Mo.

Hot-Rolled Sheets (19 gage and lighter, annealed): 4.15c, mill, except: 4.40c, Alabama City, Ala.; 4.65c, Niles, O., 5.05c, Torrance, Calif., Kokomo, Ind.

Cold-Rolled Sheets: 4.00c, mill, except: 4.20c, Ecorse, Mich.; 4.70c, Granite City, Ill.; 4.95c, Pittsburg, Calif.

Galvanized Sheets, No. 10: (Based on 5 cent zinc) 4.40c, mill, except: 5.00c, Niles, O.; 5.15c, Pittsburg, Torrance, Calif.; 5.30c, Kokomo, Ind.

Galvannealed Sheets: 4.95c, mill, except: 5.05c, Indiana Harbor, Ind.; 5.55c, Niles, O.; 5.70c, Kokomo, Ind.

Culvert Sheets, No. 16 flat Copper Steel (based on 5-cent zinc): 5.00c, mill, except: 5.40c, Granite City, Ill.; 5.45c, Kokomo, Ind.; 5.75c, Pittsburg, Torrance, Calif.

Long Ternes, No. 10 (Commercial quality): 4.80c, mill.

Enameling Sheets, No. 12: 4.40c, mill, except: 4.60c, Granite City, Ill.; 4.70c, Ecorse, Mich.; 6.00c, Niles, O.

Silicon Sheets, No. 24: Field: 5.15c, mill. Armature: 5.45c, mill, except: 5.95c, Warren, O.; 6.05c, Niles, O.

Electrical: Hot-rolled, 5.95c, mill, except: 6.05c, Kokomo, Ind.; 6.15c, Granite City, Ill.; 6.45c, Warren, O.; 6.55c, Niles, O.

Motor: 6.70c, mill except: 6.90c, Granite City, Ill.; 7.20c, Warren, O.; 7.95c, Follansbee, W. Va., Toronto, O.; 9.20c, Brackenridge, Pa.

Dynamo: 7.50c, mill, except: 8.65c, Follansbee, W. Va., Toronto, O.; 7.70c, Granite City, Ill.; 10.00c, Brackenridge, Pa.

Transformer 72, 8.05c, mill, except; 9.15c, Follansbee, W. Va., Toronto, O.; 11.80c, Brackenridge, Pa. 65, 8.60c, mill, except: 9.85c, Follansbee, W. Va., Toronto, O.; 12.35c, Brackenridge, Pa.; 58, 9.30c, mill, except: 10.55c, Follansbee, W. Va., Toronto, O.; 13.05c, Brackenridge, Pa.; 52, 10.10c, mill, except: 11.35c, Follansbee, W. Va., Toronto, O.

High-Strength Low-Alloy Sheets: Hot-rolled, 4.95c, mill, except: 5.25c, Ecorse, Mich., and Conshohocken, Pa., mills.

Galvanized (No. 10), 6.75c, mill.

Cold-rolled, 6.05c, mill, except: 6.35c, Ecorse, Mich.

Strip

Hot-Rolled Strip: 3.25c mill, except: 3.30c, Cleveland, Pittsburgh, Riverdale, Ill.; 3.25-3.35c,* Sharon, Pa.; 3.45c, Ecorse, Mich., Atlanta; 3.60c, Detroit; 3.70c, West Leechburg, Pa.; 4.00c, Pittsburg, Torrance, Calif.; 4.25c, Seattle, S. San Francisco, Los Angeles; 4.20c, Kansas City, Mo.; 4.30c, Minnequa, Colo.; 5.90c, Fontana, Calif. One company quotes 4.90c, Pittsburgh base.

* Wider than 6-in. and 6-in. and narrower, respectively.

Cold-Rolled Strip (0.25 carbon and less): 4.00c, mill, except 4.00-4.25c, Warren, O.; 4.00-4.50c, Youngstown; 4.20c, Ecorse, Mich.; 4.25c, Riverdale, Ill.; 4.40-4.50c, Detroit; 4.50c, New Haven, Conn., West Leechburg, New Castle, Pa., Boston; 4.75c, Dover, O., New Kensington, Pa.; 4.50-5.00c, Trenton, N. J.; 4.80-5.05c, Wallingford, Conn.; 5.75c, Los Angeles; 7.10c, Fontana, Calif. One company quotes 4.55c, Cleveland or Pittsburgh base, and 4.75c, Worcester, Mass., base; another, 5.00c, Pittsburgh base.

Cold-Finished Spring Steel: 0.26-0.40 C, 4.00c, mill, except: 4.25c, Dover, O., Chicago; 4.30c, Worcester, Mass.; 4.50c, New Castle, Pa., Boston, Youngstown; 4.75c, Wallingford, Conn. Over 0.40 to 0.60 C, 5.50c, mill, except: 5.65c, Chicago; 5.75c, Dover, O.; 5.80c, Worcester, Mass., Wallingford, Conn., Trenton, N. J.; 5.95c, Boston; 6.00c, New Castle, Pa. Over 0.60 to 0.80 C, 6.10c, mill, except: 6.25c, Chicago; 6.35c, Dover, O.; 6.40c, Worcester, Mass., Wallingford, Bristol, Conn., Trenton, N. J.; 6.60c, New Castle, Pa. Over 0.80 to 1.05 C, 8.05c, mill, except: 7.85c, Dover, O.; 8.20c, Chicago; 8.35c, Worcester, Mass., Bristol, Conn., Trenton, N. J. Over 1.05 to 1.35 C, 10.35c, mill, except: 10.15c, Dover, O.; 10.30c, Wallingford, Conn.; 10.50c, Chicago; 10.65c, Worcester, Mass., Trenton, N. J.

Cold-Rolled Alloy Strip: 9.50c, mill, except: 9.80c, Worcester, Mass.

High-Strength, Low-Alloy Strip: Hot-rolled, 4.95c, mill, except: 5.25c, Ecorse, Mich., mill. Cold-rolled, 6.05c, mill, except: 6.35c, Ecorse, Mich., mill.

Tin, Terne Plate

Tin Plate: American Coke, per base box of 100 lb, 1.25 lb coating $6.60-$6.80; 1.50 lb coating $6.80-$7.00. Pittsburg, Calif., mill $7.35 and $7.55, respectively, for 1.25 and 1.50 lb coatings.

Electrolytic Tin Plate: Per base box of 100 lb, 0.25 lb tin, $5.80-$6.00; 0.50 lb tin, $6.00-$6.20; 0.75 lb tin, $6.20-$6.40.

Can Making Black Plate: Per base box of 100 lb, 55 to 70 lb basis weight, $5.20-$5.30; 75 to 95 lb basis weight $5.10-$5.20; 100 to 128 lb basis weight, $5.20-$5.30. $5.95, $5.85, $5.95, respectively, Pittsburg, Calif.

Holloware Enameling Black Plate: 29-gage, 4.75c per pound, except: 4.85c, Sparrows Point, Md.; 4.95c, Granite City, Ill.

Manufacturing Ternes (Special Coated): Per base box of 100 lb, $5.90, except: $6 Fairfield, Ala., Sparrows Point, Md.

Roofing Ternes: Per package 112 sheets; 20 x 28 in., coating I.C. 8-lb, $15.50.

Plates

Carbon Steel Plates: 3.40c, mill, except: 3.40-3.60c, Cleveland; 3.45c, Sparrows Point, Md., Johnstown, Pa., Lackawanna, N. Y.; 3.60c, Pittsburgh; 3.65c, Ecorse, Mich.; 3.75c., Coatesville, Pa.; 3.95c, Claymont, Del., Conshohocken, Pa.; 4.30c, Seattle, Minnequa, Colo.; 4.56c, Houston, Tex.; 5.80c, Fontana, Calif.; 6.50c, Harrisburg, Pa.; 6.25c, Kansas City, Mo.

Floor Plates: 4.55c, mill.

Open-Hearth Alloy Plates: 4.40c, mill, except: 5.10c, Coatesville, Pa., mill.

High-Strength, Low-Alloy Plates: 5.20c mill, except: 5.10c, Coatesville, Pa.; 5.30c, Conshohocken, Pa., Sparrows Point, Md., Johnstown, Pa.; 5.65c, Ecorse, Mich., Sharon, Pa.

Shapes

Structural Shapes: 3.25c, mill, except: 3.30c, Bethlehem, Pa., Lackawanna, N. Y., Johnstown, Aliquippa, Pa.; 3.85c, Torrance, Calif.; 4.15c, Minnequa, Colo.; 4.30c, Seattle, S. San Francisco, Los Angeles; 5.75c, Fontana, Calif.

Alloy Structural Shapes: 4.05c, mill.

Steel Sheet Piling: 4.05c, mill.

High-Strength, Low-Alloy Shapes: 4.95c, mill, except: 5.05c, Bethlehem, Johnstown, Pa., Lackawanna, N. Y.

Wire and Wire Products

Wire to Manufacturers (carloads): Bright, Basic or Bessemer Wire, 4.15c, mill, except: 4.25c, Sparrows Point, Md., Kokomo, Ind.; 4.45c, Worcester, Mass.; 4.50c, Monessen, Pa., Minnequa, Colo., Atlanta, Buffalo; 4.70c, Portsmouth, O.; 4.80c, Palmer, Mass.; 5.10c, Pittsburg, Calif.; 5.15c, S. San Francisco; 5.40c, Shelton, Conn. One producer quotes 4.50c, Chicago base; another, 4.50c, Crawfordsville, Ind., freight equalized with Pittsburgh and Birmingham.

Basic MB Spring Wire, 5.55c, mill, except: 5.30c, Portsmouth, O.; 5.65c, Sparrows Point, Md., Monessen, Pa.; 5.85c, Worcester, Palmer, Mass., Trenton, N. J.; 6.50c, Pittsburg, Calif.

Upholstery Spring Wire, 5.20c mill, except: 5.30c, Sparrows Point, Md., Williamsport, Pa.; 5.50c, Worcester, Mass., Trenton, N. J., New Haven, Conn.; 6.15c, Pittsburg, Calif.

Wire Products to Trade (carloads): Merchant Quality Wire: Annealed (6 to 8 Gage base), 4.80c, mill, except: 4.90c, Sparrows Point, Md.; 4.95c, Monessen, Pa.; 5.10c, Worcester, Mass.; 5.15c, Minnequa, Colo., Kokomo, Ind.; 5.20c, Atlanta; 5.75c, S. San Francisco, Pittsburg, Calif. One producer quotes 5.15c, Chicago and Pittsburgh base; another, 5.20c. Crawfordsville, Ind., freight equalized with Pittsburgh and Birmingham.

Galvanized (6 to 8 Gage base), 5.25c, mill, except: 5.35c, Sparrows Point, Md.; 5.40c, Monessen, Pa.; 5.55c, Worcester, Mass.; 5.60c, Kokomo, Ind., Minnequa, Colo.; 5.65c, Atlanta; 6.20c, Pittsburg, S. San Francisco, Calif. One producer quotes 5.60c, Pittsburgh and Chicago base; another, 5.65c, Crawfordsville, Ind., freight equalized with Birmingham and Pittsburgh.

Nails and Staples: Standard, cement-coated and galvanized nails and polished and galvanized staples, Column 103, mill, except: 105, Sparrows Point, Md., Kokomo, Ind.; 109 Worcester, Mass.; 110 Minnequa, Colo., Atlanta; 117, Portsmouth, O.; 123, Pittsburg, Calif.; 124, Cleveland; 126, Monessen, Pa.; $6.75 per 100 pound keg, Conshohocken, Pa., Wheeling, W. Va. One producer quotes column 109, Chicago and Pittsburgh base; another, column 113, Crawfordsville, Ind., freight equalized with Birmingham and Pittsburgh.

Woven Fence (9 to 15½ Gage, inclusive): Column 109, mill, except: 113, Monessen, Pa., Kokomo, Ind.; 116, Minnequa, Colo.; 121 Atlanta; 132, Pittsburg, Calif. One producer quotes column 113, Pittsburgh and Chicago base; another, column 114, Crawfordsville, Ind., freight equalized with Pittsburgh and Birmingham.

Barbed Wire: Column 123 mill, except: 125, Sparrows Point, Md., Kokomo, Ind.; 126, Atlanta; 128, Monessen, Pa.; 130, Minnequa, Colo.; 143, Pittsburg, Calif.; 145, S. San Francisco. One producer quotes 127, Chicago and Pittsburgh base.

Fence Posts (with clamps): Column 114, Duluth; 115, Johnstown, Pa.; 116, Moline, Ill.; 122, Minnequa, Colo.; $123.50 per net ton, Williamsport, Pa.

Bale Ties (single loop): Column 106, mill, except: 108, Sparrows Point, Md., Kokomo, Ind.; 110, Atlanta; 113 Minnequa, Colo.; 130, S. San Francisco, Pittsburg, Calif. One producer quotes column 115, Crawfordsville, Ind., freight equalized with Birmingham and Pittsburgh.

Stainless Steels

(Mill prices, cents per pound)

CHROMIUM NICKEL STEELS

Type No.	Bars, Wire Shapes	Strip, Cold-Rolled	Sheets
301	28.50-28.75	30.50-32.00	37.50-40.75
302	28.50-28.75	33.00-33.75	37.50-40.75
303	31.00-31.50	36.50-39.75	39.50-43.00
304	30.00-31.25	35.00-35.75	39.50-43.00
316	46.00-48.00	55.00-57.25	53.00-57.25
347	38.50-39.75	48.50-50.25	50.00-54.00

STRAIGHT CHROMIUM STEELS

410	22.75-23.00	26.50-27.00	32.00-33.00
416	23.25-23.50	28.25-33.50	32.50-33.50
430	23.25-23.50	27.00-27.50	34.75-35.50
446	32.50-33.00	60.00-62.25	46.50-50.00

STAINLESS-CLAD STEELS

	Plates —Cladding—		Sheets —Cladding—	
	10%	20%	10%	20%
302	....	....	19.75	21.50
304	22.50	26.50	20.75	22.50
310	32.50	36.50	....	....
316	27.00	31.00	26.00	28.00
321	23.50	27.50	....	....
347	25.00	29.00	24.00	26.00
405	18.75	24.75	....	....
410	18.25	24.25	....	....
430	18.25	24.25	....	....

Tool Steels

Tool Steel: Cents per pound, producing plants; reg. carbon 19.00c; extra carbon 22.00c; special carbon 26.50c; oil-hardening 29.00c; high carbon-chromium 52.00c; chrome hot work, 29.00c.

W	Cr	V	Mo	Co	Base Per lb
18	4	1	...	...	90.50c
18	4	2	...	...	102.50c
18	4	3	...	...	114.50c
18	4	2	...	9	168.50c
1.5	4	1	8.5	...	65.00c
6.4	4.5	1.9	5	...	69.50c
6	4	3	6	...	88.00c

Tubular Goods

Standard Steel Pipe: Mill prices in carlots, threaded and coupled, to consumers about $200 a net ton.

In.	Butt Weld Blk.	Gal.	In.	Blk.	Gal.
⅛	39½–	10–	1	46–	26½–
	41½	12½		48½	28½
¼	37½–	11½–	1¼ ...	46½–	27 ·
	39½	14		49	29
⅜	34–	6½–	1½ ...	47–	27½–
	36	9		49½	29½
			2	47½–	27½ ·
½	40½–	19½–		50	30
	43	21½	2½, 3..	48–	28–
¾	43½–	23½–		50½	30½
	46	25½	3½ & 4	44½	22½

In.	Lap Weld Blk.	Gal.	Elec. Weld Blk.	Gal.	Seamless Blk.	Gal.
2	39½	17½	38½	16½	27–	5–
					38½	16½
2½ ..	42½–	20½–	41½	19½	32½–	10½–
	43½	23½			41½	20
3	42½–	20½–	41½	19½	35–	13–
	43½	21½			41½	20
3½ & 4	42½–	22½–	43½	21½	38½–	16½–
	46½	24½			43½	22
5 & 6	42½–	21–	43½	21½	38½–	18½–
	44½	22½			43½	22
7	....	....	....	....	43½	20½

Line Steel Pipe: Mill prices in carlots to consumers about $200 a net ton.

In.	Butt Weld Blk.	Gal.	In.	Butt Weld Blk.	Gal.
⅛	40½	....	1¼ ...	46–	26–
¼	38½	....		48	28
⅜	35	....	1½ ...	46½ ·	26½–
½	40–	18½–		48½	28½
	42	20½	2	47–	26½ ·
¾	43–	23–		49	29
	45	24½	2½ & 3	47½–	27
1	45½–	25½–		49½	29½
	47½	27½	3½ & 4	43½	....

In.	Lap Weld Blk.	Gal.	Elec. Weld Blk.	Gal.	Seamless Blk.	Gal.
2	38½	16½	37½	15½	26–	4 ·
					37½	16
2½ ..	41½–	20½	40½	19½	31½–	9½–
	42½				40½	19
3 ...	41½–	20½	40½	19½	34–	12–
	42½				40½	19
3½-4.	41½–	20–	42½	20½	37½–	15½–
	45½	23½			42½	21
5 & 6.	41½–	20	42½	20½	37½–	15½–
	43½				42½	21
8 ...	45½	....	44½	21½–	40½–	17½–
				22	44½	22
10 ..	45	....	44	21–	41½–	18½–
				21½	44	21½
12 ..	44	....	43	20	40½–	17½–
					43	20½

Standard Wrought Iron Pipe: Mill price in carlots, threaded and coupled, to consumers about $200 a net ton.

In.	Butt Weld Bulk	Gal.	In.	Lap Weld Bulk	Gal.
⅜ ...	+59½	+90½	1¼ ..	+22	+48
½ ...	+20½	+47½	1½ ..	+15½	+40½
¾ ...	+10½	+36½	2	+ 7½	+31½
1 and			2½-3½	+ 5	+27
1¼	+ 4½	+27½	4	List	+21
1½ ..	— 1½	+24	4½-8	+ 2	+22½
2	— 2	+23½	9-12.	+12	+32

Boiler Tubes: Net base c.l. prices, dollars per 100', mill; minimum wall thickness, cut lengths 4 to 24"; inclusive.

O.D. In.	B.W. Ga.	Seamless Hot Rolled	Seamless Cold Drawn	Elec. Weld Hot Rolled	Elec. Weld Cold Drawn
1	13	....	13.39	13.00	13.00
1¼	13	....	15.87	13.21	15.39
1½	13	$15.05	17.71	14.60	17.18
1¾	13	17.11	20.15	16.60	19.54
2	13	19.18	22.58	18.60	21.89
2¼	12	23.54	27.70	22.83	26.88
2½	12	25.79	30.33	25.02	29.41
2¾	12	27.33	32.14	26.51	31.18
3	12	28.68	33.76	27.82	32.74
3¼	11	33.39	39.29	32.39	38.11
3½	11	35.85	42.20	34.78	40.94
4	10	44.51	52.35	43.17	50.78

Pipe Cast Iron: Class B, 6-in. and over, $93.50 per net ton, Birmingham; $106.70, del. Chicago; 4-in. pipe, $5 higher; Class A pipe, $5 a ton over Class B.

Rails, Supplies

Rails: Standard, over 60-lb; $3.20 per 100 lb, mill, except: $3.50, Indiana Harbor, Ind.

Light (billet): $3.55 per 100 lb, mill, except: $4.25, Minnequa, Colo.

Light (rail steel): $5.10 per 100 lb, Williamsport, Pa.

Railroad Supplies: Track bolts, treated: $8.50 per 100 lb, mill. Untreated: $8.25, mill.

Tie Plates: 4.05c mill, except: 4.20c, Pittsburg, Calif.; 4.50c, Seattle.

Splice Bars: 4.25c, mill.

Standard Spikes: 5.35c, mill, except: 5.25c, Pittsburgh.

Axles: 5.20c, mill.

RAW MATERIAL AND FUEL PRICES

Minimum delivered prices do not include 3 per cent federal tax.

Pig Iron

Per Gross Ton

	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa., furnace	$48.00	$48.50	$49.00	$49 50
Newark, N. J., del.	50.39	50.89	51.39	51.89
Brooklyn, N. Y., del.	....	52.40	52.90	....
Philadelphia, del.	50.17	50.67	51.17	51.67
Birmingham, furnace	42.88	43.38	....	....
Cincinnati, del.	....	49.09	....	....
Buffalo, furnace	*47.00	*47.00	*47.50	48.00
Boston, del.	55.42	55.42	55.92	....
Rochester, del.	49.22	49.22	49.72	50.22
Syracuse, del.	50.025	50.025	50.525	41.025
§**Chicago**, district furnaces	46.00	46.00-46.50	46.50	47.00
Milwaukee, del.	47.72	47.72-48.22	48.22	48.72
Muskegon, Mich., del.	....	50.98-51.48	51.48	....
Cleveland, furnace	46.00	46.50	46.50	47.00
Akron, del.	48.17	48.67	48.67	49.17
Lone Star, Tex., furnace	....	†75.00	....	....
Duluth, furnace	....	46.00	46.50	47.00
Erie, Pa., furnace	45.50	46.00	46.50	47.00
Everett, Mass., furnace	....	49.50	50.00	....
Geneva, Utah, furnace	46.00	46.50	....	....
Seattle, Tacoma, Wash., del.	....	53.63	....	....
Portland, Oreg., del.	....	53.63	....	....
Los Angeles, San Francisco	53.13	53.63	....	....
Granite City, Ill., furnace	47.90	48.40	48.90	....
St. Louis, del.	48.65	49.15	49.65	....
Ironton, Utah, furnace	....	46.50	....	....
‡**Neville Island, Pa., furnace**	46.00	46.50	46.50	47.00
Pittsburgh, del., N.&S. Sides	47.08	47.58	47.58	48.08
Pittsburgh (Carnegie), furnaces	46.00	....	....	47.00
Sharpsville, Pa., furnace	46.00	46.50	46.50	47.00
Steelton, Pa., furnace	48.00	48.50	49.00	49.50
Struthers, O., furnace	42.50	....	....	....
Swedeland, Pa., furnace	50.00	50.50	51.00	....
Toledo, O., furnace	45.50	46.00	46.50	47.00
Cincinnati, del.	50.05	50.55	....	....
Youngstown, O., furnace	46.00	46.50	46.50	47.00
Mansfield, O., del.	49.87	50.37	50.37	50.87

* Republic Steel Corp. quotes $1 a ton higher for basic, No. 2 foundry and malleable at Buffalo.

† Low phosphorus southern grade.

‡ To Neville Island base add: $0.86 for McKees Rocks, Pa.; $1.31 Lawrenceville, Homestead, McKeesport, Monaco; $1.73 Verona; $1.94 Brackenridge; $1.08 for Ambridge and Aliquippa.

§ Includes, in addition to Chicago, South Chicago, Ill., East Chicago, Gary and Indiana Harbor, Ind.

Blast Furnace Silvery Pig Iron

6.00-6.50 per cent Si (base).$59.50
6.51-7.00.. 60.75 9.01- 9.50. 67.00
7.01-7.50.. 62.00 9.51-10.00. 68.25
7.51-8.00.. 63.25 10.01-10.50. 69.50
8.01-8.50.. 64.50 10.51-11.00. 70.75
8.51-9.00.. 65.75 11.01-11.50. 72.00
F.o.b. Jackson, O., per gross ton. Buffalo furnace $1.25 higher.

Bessemer Ferrosilicon

Prices same as for blast furnace silvery iron, plus $1 per gross ton.

Electric Furnace Silvery Pig Iron Si 14.01-14.50%, $84.75 furnace, Niagara Falls; $84 open-hearth and $85 foundry grade, Keokuk, Iowa. Add $1 a ton for each additional 0.5% Si to 18%; 50c for each 0.5% Mn over 1%; $1 a ton for 0.045% max. phos.

Charcoal Pig Iron

Semi-cold blast, low phosphorus. F.o.b. furnace, Lyles, Tenn. ..$66 (For higher silicon iron a differential over and above the price of base grade is charged as well as for the hard chilling iron, Nos. 5 and 6.)

Low Phosphorus

Steelton, Pa., $54; Buffalo, Troy, N. Y., $50. Philadelphia, $56.81 delivered.

Intermediate phosphorus, Central furnace, Cleveland, $51.

Differentials

Prices are subject to following differentials:

Silicon: An additional charge of 50 cents a ton for each 0.25 per cent silicon in excess of base grade (1.75% to 2.25%).

Phosphorus: A reduction of 38 cents a ton for phosphorus content of 0.70 per cent and over.

Manganese: An additional charge of 50 cents a ton for each 0.50 per cent, or portion thereof, manganese in excess of 1%.

Nickel: An additional charge for nickel content as follows: Under 0.50%, no extra; 0.50% to 0.74%, inclusive, $2 a ton; for each additional 0.25% nickel, $1 a ton.

Fluorspar

Metallurgical grade, f.o.b. shipping point, in Ill., Ky., net tons, carloads, effective CaF_2 content, 70% or more $37; less than 60% $34.

Metallurgical Coke

Price per Net Ton

Beehive Ovens

Connellsville, furnace.. $13.50-15.50
Connellsville, foundry.. 16.00-18.00
New River, foundry.... 16.50
Wise county, foundry.. 15.35
Wise county, furnace.. 14.60

Oven Foundry Coke

Kearney, N. J., ovens.. $21.50
Chicago, ovens 20.40
Chicago, del. ..... †21.75
Detroit, del. 23.95
Terre Haute, ovens.... 21.00
Milwaukee, ovens 21.15
Indianapolis, ovens ... 20.85
Chicago, del. 24.00
Cincinnati, del. 21.40
Detroit, del. 24.40
Ironton, O., ovens ... 18.25
Painesville, O., ovens.. 20.90
Erie, del. 22.57
Cleveland, del. 22.46
Buffalo, del. 23.25
Birmingham, ovens .. 17.70
Philadelphia, ovens ... 20.55
Swedeland, Pa., ovens. 20.50
Portsmouth, O., ovens. 19.25
Detroit, ovens 20.65
Detroit, del. *21.65
Flint, del. 22.85
Pontiac, del. 21.91
Saginaw, del. 23.15

Includes representative switching charge of: *, $1; †, $1.35.

Coal Chemicals

Spot, cents per gallon, ovens

(Price effective as of Aug. 5)

Pure benzol 20.00
Toluol, one degree 20.50-26.50
Toluol, two degrees ... 23.00-26.50
Industrial xylol 20.50-26.50

Per ton, bulk, ovens

Sulphate of ammonia $45.00

Per pound, ovens

(Effective as of Oct. 1)

Phenol, 40 (car lots, returnable drums) ... 13.50
Do., less than carlots 14.25
Do., tank cars 12.50

(Effective as of Oct. 25)

Naphthalene flakes, balls, bbl to jobbers, "household use" 13.75

Refractories

(Prices per 1000 brick, f.o.b. plant)

Fire Clay Brick

Super Duty: St. Louis, Vandalia, or Farber, Mo., Olive Hill, Ky., Clearfield, or Curwensville, Pa., $100.

High-Heat Duty: Salina, Pa., $85; Woodbridge, N. J., St. Louis, Farber, or Vandalia, Mo., West Decatur, Orviston, Clearfield, Beach Creek, or Curwensville, Pa., Olive Hill, Hitchins, Haldeman, or Ashland, Ky., Troup, or Athens, Tex., Stevens Pottery, Ga., Portsmouth, or Oak Hill, O., $80.

Intermediate-Heat Duty: St. Louis, or Vandalia, Mo., West Decatur, Orviston, Beach Creek, or Clearfield, Pa., Olive Hill, Hitchins, Haldeman, or Athens, Ky., Troup, Tex., Stevens Pottery, Ga., or Portsmouth, O., $74.

Low-Heat Duty: Oak Hill, or Portsmouth, O., Clearfield, Pa., Bessemer, Ala., $66.

Ladle Brick

Dry Press: $55, Freeport, Merill Station, Clearfield, Pa.; Chester, New Cumberland, W. Va.; Irondale, Wellsville, O.

Wire Cut: $53, Chester, New Cumberland, W. Va.; Wellsville, O.

Malleable Bung Brick

St. Louis, Mo., Olive Hill, Ky., $83; Beach Creek, Pa., $73.

Silica Brick

Mt. Union, Claysburg, or Sproul, Pa., Ensley, Ala., $80; Hays, Pa. $85; Joliet or Rockdale, Ill., $89; Lehi, Utah, Los Angeles, $95.

Eastern Silica Coke Oven Shapes: Claysburg, Mt. Union, Sproul, Pa., $80.

Illinois Silica Coke Oven Shapes: Joliet or Rockdale, Ill., $81.

Basic Brick

(Base prices per net ton; f.o.b. works, Baltimore or Chester, Pa.)

Chrome brick or chemical-bonded chrome brick, $69, magnesite brick, $91; chemical-bonded magnesite, $80.

Magnesite

(Base prices per net ton, f.o.b. works, Chewelah, Wash.)

Domestic dead-burned, ⅜" grains: Bulk, $31; single paper bags. $35.50.

Dolomite

(Base prices per net ton)

Domestic, dead-burned bulk: Billmeyer, Blue Bell, Williams, Plymouth Meeting, Pa., Millville, W. Va., Narlo, Millersville, Martin, Gibonsburg, Woodville, O., $11.85; Thornton, McCook, Ill., $11.95; Dolly Sliding, Bonne Terre, Mo.. $12.05.

Ores

Lake Superior Iron Ore

Gross ton, 51½% (natural) Lower Lake Ports

(Any increase or decrease in R. R. freight rates, dock handling charges and taxes thereon effective after Apr. 1, 1948, are for buyer's account.)

Old range bessemer $6.60
Old range nonbessemer 6.45
Mesabi bessemer 6.35
Mesabi nonbessemer 6.20
High phosphorus 6.20

Eastern Local Ore

Cents, units, del. E. Pa.

Foundry and basic 56.62% contract 15.25

Foreign Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68% .. 14.50
Brazil iron ore, 68-69% ... 19.50

Tungsten Ore

Wolframite and scheelite per short ton unit, duty paid ..... $26–$28

Manganese Ore

48-50%, duty paid, f.o.b. cars, New York, Philadelphia, Baltimore, Norfolk, Va., Mobile, Ala., New Orleans, 67.60c-72.60c.

Chrome Ore

Gross ton f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S.C., plus ocean freight differential for delivery to Portland, Oreg., and/or Tacoma, Wash. (S S paying for discharge; dry basis, subject to penalties if guarantees are not met.)

Indian and African
48% 2.8:1 ..... $37.50
48% 3:1 ..... 39.00
48% no ratio 31.00

South African (Transvaal)
44% no ratio .....$25.50-$26.00
45% no ratio 26.50
48% no ratio 29.00-30.00
50% no ratio 29.50-30.50

Brazilian—nominal
44% to 2.5:1 lump $33.65

Rhodesian
45% no ratio .....$27-$27.50
48% no ratio 30.00
48% 3:1 lump 39.00

Domestic (seller's nearest rail)
48% 3:1 ..... $39.00

Molybdenum

Sulphide conc., lb, Mo., cont., Mines $0.75

WAREHOUSE STEEL PRICES

Prices, cents per pound, for delivery within switching limits, subject to extras.

	SHEETS			STRIP		BARS				PLATES	
	H-R 10 Ga.	C-R 17 Ga.	Gal. *10 Ga.	†H-R	†C-R	H-R Rds. ⅝" to3"	C-F Rds. ½" & up	H-R Alloy **4140	Standard Structural Shapes	Carbon ⅜"-¾"	Floor ⅜" & Thicker
Boston (city) ..	5.84	6.64	7.84	6.04	6.90	5.69	6.39	8.24-9.74	5.54	5.89	7.34
Boston (c'try) .	5.69	6.49	7.69	5.89	6.75	5.54	6.24	8.09-9.59	5.39	5.74	7.19
New York (city)	5.73-5.80	6.73	7.74-7.83	6.08-6.28	...	5.73	6.58	8.67	5.52-5.78	5.98	7.48
New York(c'try)	5.53-5.60	6.53	7.54-7.63	5.88-6.08	...	5.53	6.38	...	5.32-5.58	5.78	7.28
Phila. (city) ...	5.50-5.86	6.61-6.81	7.42-7.62	5.46-5.81	...	5.57-5.65	6.31	8.39	5.24-5.40	5.52-5.65	6.73-7.16
Phila. (c'try) ..	5.35-5.71	6.46-6.66	7.27-7.47	5.31-5.66	...	5.42-5.50	6.16	8.24	5.09-5.25	5.37-5.50	6.58-7.01
Balt. (city) ...	5.43†	6.33	7.18	5.49	...	5.54	...	...	5.48	5.68	7.13
Balt. (c'try)...	5.28†	6.18	7.03	5.34	...	5.39	...	...	5.33	5.53	6.98
Norfolk, Va. ..	5.75	...	...	...	...	6.00	7.00	...	6.00	6.00	7.50
Wash. (w'hse).	5.81-5.97	...	...	5.87	...	5.88-5.92	6.58	...	5.82-5.86	6.02-6.06	7.47-7.51
Buffalo (del.)..	5.20-5.25	5.95-6.00	7.75	5.70	6.50	5.35	6.05	9.50	5.25	5.60	7.70
Buff. (w'hse)..	5.05-5.10	5.80-5.85	7.60	5.55	6.35	5.20	5.90	9.40	5.10	5.45	7.55
Pitts. (w'hse).	4.85-5.00§	5.75-5.85[8]	7.00-7.05	5.00-5.35	5.95-6.00	4.90-5.10	5.65	7.65	4.90-5.15	5.05-5.25	6.55
Det. (w'hse)...	5.40-5.75§	6.30-6.60	7.60	5.40-5.70	6.50	5.45	6.17	8.12	5.45	5.65-5.80	7.10
Cleveland (del.)	5.13-5.90‡‡	5.90-6.29	7.34-8.00‡‡	5.17-5.69	6.45-6.85	5.30-5.35	6.05-6.10	8.24-8.54	5.34-5.60	5.50-5.55	6.95-7.00
Cleve. (w'hse) .	4.98-5.75	5.75-6.14	7.19-7.85	5.02-5.54	6.30-6.70	5.15-5.20	5.90-5.95	8.09-8.39	5.19-5.45	5.35-5.40	6.80-6.85
Cincin. (w'hse).	5.26	6.11	7.60	5.52	6.07	5.52	6.07	...	5.37	5.61	6.91
Chicago (city)..	5.00-5.20	5.90†[8]	7.30	5.00	6.64-6.80	5.05	5.85	8.25[9]	5.05	5.25	6.70
Chicago (w'hse)	4.85-5.05	5.75‡[8]	7.15	4.85	6.49-6.65	4.90	5.70	8.10[9]	4.90	5.10	6.55
Milwaukee (city)	5.37	6.07‡[8]	7.47	5.17	6.81-6.97	5.22	6.02	8.42[9]	5.22	5.42	6.87
St. Louis (del.)	5.34§	6.24[8]	7.44	5.34	6.64	5.39	6.19[12]	6.64	5.39	5.59	7.04
St. L. (w'hse).	5.19§	6.09[8]	7.29	5.19	6.49	5.24	6.04[12]	9.49	5.24	5.44	6.89
Birm'ham (city)	5.20§	...	6.60	5.20	...	5.15	6.66	...	5.15	5.40	7.41-7.66
Birm'ham(c'try)	5.05§	...	6.45	5.05	...	5.00	6.51	...	5.00	5.25	7.26-7.51
Omaha, Nebr...	6.07	...	9.33	6.07	...	6.12	6.92	...	6.12	6.32	7.77
Los Ang. (city)	6.55§	8.05	8.20†	6.75	9.50	6.20	8.00-8.50	...	6.70	6.40	8.15
Los Angeles (w'hse)	6.40§	7.90	8.05†	6.60	9.35	6.05	7.85-8.35	...	6.55	6.25	8.00
San Francisco .	5.95[21]	7.15	8.05	6.75[21]	8.25[15]	5.90[21]	7.55	10.20‡‡	5.90	7.60	8.10
Seattle-Tacoma .	6.35[17]	7.90[8]	8.40	6.70[17]	...	6.20[17]	8.15[1]	9.45[2]	6.30[17]	6.35[17]	8.40[17]

Base Quantities: 400 to 1999 lb except as noted: Cold-rolled strip, 2000 lb and over; cold finished bars, 1000 lb and over; galvanized sheets, 450 to 1499 lb; [1]—1500 lb and over; [2]—1000 to 4999 lb; [3]—450 to 39,999 lb; [4]—three to 24 bundles; [5]—450 to 1499 lb; [6]—400 to 14,999 lb; [8]—400 to 1499 lb; [9]—1000 to 1999 lb; [11]—1000 to 39,999 lb; [12]—1000 lb and over; [15]—2000 lb and over; [17]—300 to 999 lb; [18]—1500 to 1999 lb; [19]—1500 to 39,999 lb; [20]—400 to 3999 lb; [21]—400 lb and over; [22]—500 to 1499 lb; [28]—Price (but not other price in range) applies to any and all quantities.

* Includes gage and coating extra, except Birmingham (coating extra excluded); † does not include gage extras; ‡ 15 gage; § 18 gage and heavier; ** as rolled; †† add 0.40 for sizes not rolled in Birmingham; ‡‡ top level of quoted range is nominal.

Bolts,Nuts

Prices to consumers, f.o.b. midwestern plants. Sellers reserve right to meet competitors' prices, if lower. Additional discounts on carriage and machine bolts, 5 for carloads; 15 for full containers, except tire and plow bolts.

Carriage and Machine Bolts

½-in. and smaller; up to 6 in. in length.	35 off
⅝ and ¾ x 6-in. and shorter.....	37 off
⅞-in. and larger x 6-in. and shorter..	34 off
All diameters longer than 6-in.	30 off
Tire bolts	25 off
Plow bolts	47 off
Lag bolts, 6 in. and shorter.....	37 off
Lag bolts, longer than 6 in.	35 off

Stove Bolts

In packages, nuts separate, 58½-10 off; bulk 70 off on 15,000 of 3-in. and shorter, or 5000 over 3 in., nuts separate.

Nuts

Semifinished hexagon	A.S. Light	A.S. f.o.b. Reg. and Heavy
⅜-in. and smaller.....	41 off	.....
½-in. and smaller.....	.....	38 off
½-in.-1-in.	39 off	.....
⅝-in.-1-in.	.....	37 off
1⅛-in.-1½-in.	37 off	35 off
1⅝-in. and larger.....	34 off	28 off

Additional discount of 15 for full containers.

Hexagon Cap Screws (Packaged)

Upset 1-in. smaller by 6-in. and shorter (1020 bright).....	46 off
Upset (1035 heat treated) ⅝ and smaller x 6 and shorter.....	40 off
¾, ⅞, & 1 x 6 and shorter.....	35 off

Square Head Set Screws

Upset 1-in. and smaller.....	51 off
Headless, ¼-in. and larger.....	31 off

Rivets

F.o.b. midwestern plants

Structural ½-in. and larger.....	6.75c
⅜-in. and under.....	48 off

Washers, Wrought

F.o.b. shipping point, to jobbers..Net to $1 off

FERROALLOY PRODUCT PRICES

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si) Carlot per gross ton, $57, Palmerton, Pa.; $66, Pittsburgh and Chicago; (16% to 19% Mn.) $1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.) Carload, lump, bulk $160 per gross ton of alloy, c.l., packed, $172; gross ton lots, packed, $187; less gross ton lots, packed, $204; f.o.b. Alloy, W. Va., Niagara Falls, N. Y.; or Welland, Ont. Base price; $165, Rockwood, Tenn.; $162, f.o.b. Birmingham and Johnstown, Pa., furnaces; $160, Sheridan, Pa.; $163, Aetna, Pa. Shipment from Pacific Coast warehouses on one seller add $31 to above prices, f.o.b. Los Angeles, San Francisco, Portland, Oreg. Shipment from Chicago warehouse, ton lots, $201; less gross ton lots, $218 f.o.b. Chicago. Add or subtract $2 for each 1%, or fraction thereof, of contained manganese over 82% and under 78%.

Low-Carbon Ferromanganese, Regular Grade: (Mn 80-85%). Carload, lump, bulk, max. 0.10% C, 24.75c per lb of contained Mn, carload packed 26.0c, ton lot 27.1c, less ton 28.3c. Delivered. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max. 0.50% C, and 4.5c for max. 0.75% C—max. 7% Si. **Special Grade:** (Mn 90% approx., C 0.07% max., P 0.06% max.). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max., Si 1.5% max.). Carload, lump, bulk 18.15c per lb of contained Mn, carload packed 18.9c, ton lot 20.0c, less ton 21.2c, Delivered. Spot, add 0.25c.

Manganese Metal: (Mn 96% min., Fe 2% max., Si 1% max., C 0.20% max.). Carload, 2" x D, packed 35.5c per lb of metal, ton lot 37c, less ton 39c. Delivered. Spot, add 2c.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 8.6c per lb of alloy, carload packed, 9.35c, ton lot 10.25c, less ton 11.25c. Freight allowed. For 2% C grade, Si 15-17.5%, deduct 0.2c from above prices. Spot, add 0.25c.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l., lump, bulk 20.5c per lb of contained Cr, c.l., packed 21.4c, ton lot 22.55c, less ton 23.95c. Delivered. Spot, add 0.25c.

"SM" High-Carbon Ferrochrome: (Cr 60-65%, Si 4-6%, Mn 4-6%, C 4-6%). Add 1.1c to high-carbon ferrochrome prices.

Foundry Ferrochrome: (Cr 62-66%, C 5-7%). Contract, c.l., 8MxD, bulk 22.0c per lb of contained Cr, c.l., packed 22.9c, ton 24.25c, less ton 26.0c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: (Cr 67-72%). Contract, carload, lump, bulk, max. 0.03% C 31.85c per lb of contained Cr, 0.04% C 29.75c, 0.05% C 29.25c, 0.06% C 28.75c, 0.10% C 28.25c-28.5c, 0.15% C 28.0c, 0.20% C 27.75c, 0.50% C 27.5c, 1% C 27.25c, 2% C 27.0c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

"SM" Low-Carbon Ferrochrome: (Cr 62-66%, Si 4-6%, Mn 4-6%, add C 1.25% max.). Contract, carload, lump, bulk 27.75c per lb of contained chromium, carload, packed 28.85c, ton lot 30.05c, less ton 31.85c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome, Nitrogen Bearing: Add 5c to 0.10% C low-carbon ferrochrome prices for approx. 0.75% N. Add 5c for each 0.25% of N above 0.75%.

Chromium Metal: (Mn 97% Cr and 1% Fe). Contract, carload, 1" x D; packed, max. 0.50% C grade, $1.03 per lb of contained chromium, ton lot $1.05, less ton $1.07. Delivered. Spot, add 5c.

SILICON ALLOYS

20-30% Ferrosilicon: Contract, carload, lump, bulk, 16.50-17.50c per lb of contained Si; packed 18.90c; ton lots 20.00c, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 10.5c per lb of contained Si, carload

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Metal Export Quotas Reduced

Substantial cuts for fourth quarter reflect both increased domestic demand and lower requirements by importing nations, according to Office of International Trade

New York—Fourth quarter export quotas for most nonferrous metals, minerals and manufactures are substantially lower than those for previous quarters, Office of International Trade, Department of Commerce, announced last week. This reduction reflects both increased domestic demand and lower requirements by importing nations. In some instances, the decreased foreign demand has been caused by dollar shortages in the importing countries.

The quota for zinc slabs, pigs and blocks has been reduced 75 per cent. Other substantial reductions have been made in the quotas for copper plates, sheet and strip; rubber-covered wire; brass and bronze bars, rods, plates, sheet, strip and circles; lead anodes, lead battery plate, and lead and tin foil.

Increases have been made in the quotas for tin ingots, pigs and bars; lead pigs and bars; lead sheet and pipe; and lead solder. These increases are to meet the needs of special projects in Latin America and the Near East, affecting the interests of the United States.

A number of commodities which were given only overall world quotas in preceding quarters are allocated on a country basis for fourth quarter.

Copper — Continued tie-ups of the Utah mining operations and coastal shipping facilities are cutting sharply into new supplies of copper. Since consumption is being maintained at a high rate, stocks of refined metal have been dropping in recent weeks. Consumption by fabricators increased to 126,700 tons in October from 126,236 tons in the preceding month. The October figure compares with producer-to-fabricator deliveries of refined metal which amounted to 112,580 tons. The amount of copper involved in products sold by the fabricators during October amounted to 104,947 tons compared with 97,083 tons in September. The latter figure represents a sharp downward revision from 109,733 tons originally reported. Stocks of refined copper in the hands of fabricators at the end of October amounted to 381,198 tons, representing a decrease of about 13,700 tons from the previous month. Working stocks at the end of October totaled 295,960 tons, an increase of about 6000 tons. Unfilled orders on Oct. 31 amounted to 295,658 tons, a drop of 21,753 tons to the smallest figure reported since April. The deficit in the consumers' sales position rose to 120,440 tons as of Oct. 31, or a rise of about 26,000 tons.

Lead — The longshoremen's strike continued to seriously disrupt the flow of material to those consumers who have been using Mexican lead. If the strike continues much longer, the lead will have to be shipped to United States consumers by rail which involves substantially higher transportation costs. Due to uncertainty as to the amount of lead which will be available as well as to how much lead will be earmarked for the government's permanent stockpile, most producers have delayed opening of December books.

Brass Mill Products—Leading brass mills have advanced their prices on alloy products, scrap allowances and standard brass pipe, while prices for condenser tubes have been increased correspondingly to those effected in the alloys. The advances range from ⅛-cent to ⅞-cent a pound on both the alloys and from ¼-cent to 1-cent on scrap allowances. The new prices for yellow brass sheet, wire, rods and tubes show increases of 0.84 cents; the same forms of best quality brass are up 0.70 cents; low brass 80 per cent, 0.50 cents; red brass 85 per cent, 0.37 cents; commercial bronze 90 per cent, 0.25 cents; and gilding metal 95 per cent, 0.12 cents. Nickel silver sheet 18 per cent is up 0.50 cents, while the new price for free-cutting brass rod is up 0.94 cents. The new prices on the principal items are as follows:

	Sheet	Wire
Yellow brass	34.59c	34.88c
Best quality brass 72%	35.33	35.62
Low brass 80%	35.66	35.95
Red brass 85%	36.01	36.30
Com. bronze 90%	36.88	37.17
Gilding metal 95%	37.23	37.52
Nickel silver 18%	46.92	....
	Rods	**Tubes**
Yellow brass	34.28c	37.60c
Best quality brass 72%	35.02	37.99
Low brass 80%	35.35	38.57
Red brass 85%	35.70	38.92
Com. bronze 90%	36.57	39.54
Gilding metal 95%	36.92	....
Free cutting brass	29.24	....

The new mill scrap allowances for clean heavy material are as follows:

		Increase per lb
Yellow brass	18.87½c	⅞c
Low brass	19.87½	⅜c
Red brass	20.00	¼c
Com. bronze	20.12½	⅜c
Copper	21.12½	unchanged
Brass turnings	18.12½	1c

New net prices for standard sizes of red brass pipe were also announced, prices for three of the principal sizes being as follows:

	Inches		
	½	¾	1
Under 2,000 ft or lb	49.46c	65.39c	86.45c
Includes 2,000 to 10,000 ft or lb	43.51	57.52	76.05
Includes 10,000 or more ft or lb	41.28	54.57	72.15

No change in extras.

Zinc — Due to limited supplies available for sale, only routine business was transacted in the domestic zinc market last week on the basis of 17.50c, East St. Louis. Some export business was done at 18.00c, f.a.s. Gulf ports.

Tin — Office of Metals Reserve received 7429 tons of tin in October, of which 2300 tons came from the Longhorn smelter and 5129 tons from abroad. Allocations amounted to 5056 tons. For the first 10 months receipts totaled 70,100 tons while the allocations totaled 50,259 tons. Stocks at the end of October amounted to 44,814 tons compared with 41,575 tons at the end of September.

Aluminum — Secondary aluminum smelters increased their prices for ingot about ¼ to ¾-cent a pound due to the further strengthening in aluminum scrap prices.

Primary aluminum ingot producers are having difficulty in meeting demands fully, due in a large measure to power shortages in the northwest. It is reported in trade circles here that imports of foreign ingot from Marshall Plan countries are finding their way into the gray market at prices ranging from 50 to 70 per cent above the domestic level.

Silver—Handy & Harman reduced its quotation for foreign silver 1/2-cent on Nov. 19 to the basis of 73.75c per ounce. This is the lowest level quoted since Aug. 27 and reflects a drop in consumer demand.

Some Wire Mills May Close

New York — The shortage of lead and copper may cause some small wire mills to close down, according to trade reports here. The scarcity of these metals is being made worse by the dock strikes on both the East and West coasts. These walkouts have tied up metal from foreign countries on board ships in United States harbors. Gray market activities in lead are again becoming active. A large consumer was offered several thousand tons of foreign-origin lead at 26.50c a pound, but the offer in this instance was not accepted. Several hundred tons of "outside" lead also were reported available at 25.50c a pound. Other offers of foreign lead and lead recovered from domestic scrap have been reported at prices ranging from 25.00c to 26.00c a pound. The producers' market held unchanged last week, however, at 21.50c, New York.

Gold Output Gains in September

Washington—Monthly mine output of gold rose 8 per cent in September to 205,944 fine ounces from 191,118 ounces the preceding month. On a daily average basis production for the month was 11 per cent above August, according to the Bureau of Mines. This was the highest total for any month since October, 1947. Of the four leading gold producing areas, Alaska gained 31 per cent, Utah 12 per cent and South Dakota 3 per cent, while California declined 7 per cent.

Duquesne Stops Ingot Output

Pittsburgh — Duquesne Smelting Corp., this city, subsidiary of American Metals Co. Ltd., New York, will discontinue production of brass and bronze ingots Dec. 1. Present plans call for continued production of die castings and zinc dust for an indefinite period. Employment is expected to be reduced to about 200.

NONFERROUS METAL PRICES

(Cents per pound, carlots, except as otherwise noted)

Copper: Electrolytic, 23.50c, Conn. Valley; Lake, 23.62½c, Conn. Valley.

Brass Ingot: 85-5-5-5 (No. 115) 22.00c; 88-10-2 (No. 215) 31.00c; 80-10-10 (No. 305) 27.25c; No. 1 yellow (No. 405) 17.50-18.00c.

Zinc: Prime western 17.50c, brass special 17.75c, intermediate 18.00c, East St. Louis; high grade 18.50c, delivered.

Lead: Common 21.30-21.35c, chemical and corroding 21.40c, St. Louis.

Primary Aluminum: 99% plus, ingots 17.00c, pigs 16.00c. Base prices for 10,000 lb and over, fob shipping point, freight allowed.

Secondary Aluminum: Piston alloy (No. 122 type) 26.25-26.50c; No. 12 foundry alloy (No. 2 grade) 26.00-26.25c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 27.50-28.50c; grade 2, 26.50-27.25c; grade 3, 25.50-26.25c; grade 4, 25.00-25.50c. Prices include freight at carload rate up to 75 cents per 100 lb.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over, 20.50c, fob Freeport, Tex.

Tin: Grade A, 99.8% or higher (including Straits) $1.03; grade B, 99.8% or higher, not meeting specifications for grade A, with 0.05% max. arsenic, $1.028; grade C, 99.65-99.79%, incl., $1.024; 99.5-99.649% $1.024, grade F, 98-98.999% $1.015 for tin content. Prices are ex-dock, New York, in 5-ton lots.

Antimony: American 99-99.8% and over but not meeting specifications below, 38.50c; 99.8% and over (arsenic 0.05% max.; other impurities, 0.1% max.) 39.00c, fob Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 40.00c; 25-lb pigs, 42.50c; shot nom.; "XX" nickel shot, 43.50c; "F" nickel shot or ingots, for addition to cast iron, 40.50c. Prices include import duty.

Mercury: Open market, spot, New York $78-$80 per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, $24.50 per lb contained Be.

Cadmium: "Regular" straight or flat forms, $2, del.; special or patented shapes, $2.10.

Cobalt: 97-98%, $1.65 per lb for 550 lb (keg); $1.67 per lb for 100 lb (case); $1.72 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York, 73.75c per ounce.

Platinum: $93-$96 per ounce.

Palladium: $24 per troy ounce.

Iridium: $110-$115 per troy ounce.

Titanium (sponge form): $5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(New price schedule, covering brass products and effective as of Nov. 19, being prepared by mills.)

Sheet: Copper 37.18; yellow brass 33.75; commercial bronze, 95%, 37.11; 90%, 36.63; red brass, 85%, 35.64; 80%, 35.16; best quality, 34.63; nickel silver, 18%, 46.41; phosphor-bronze, grade A, 5%, 56.05.

Rods: Copper, hot rolled 33.03; cold drawn 34.28; yellow brass, free cutting, 33.44; commercial bronze, 95% 36.80; 90% 36.32; red brass, 85% 35.33; 80% 34.85.

Seamless Tubing: Copper 37.22; yellow brass 36.76; commercial bronze 90% 39.29; red brass 85% 38.55; 80% 38.07.

Wire: Yellow brass 34.04; commercial bronze, 95% 37.40; 90% 36.92; red brass, 85% 35.93, 80% 35.45; best quality brass 34.92.

Copper Wire: Bare, soft, fob eastern mills, c.l. 29.42½c, l.c.l. 29.92½-30.05c; weatherproof, fob eastern mills, c.l. 29.60-29.85c, l.c.l. 30.35c; magnet, delivered, c.l. 32.75-33.50c, 15,000 lb or more 33.00-33.75c, l.c.l. 33.50-34.25c.

ALUMINUM

Sheets and Circles: 2S and 3S mill finish c.l. (Two producers quote 1-cent per pound lower.)

Thickness Range, Inches	Widths or Diameters, In., Incl.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	26.9	...	...
0.135-0.096	12-48	27.4	...	...
0.095-0.077	12-48	27.9	26.0	29.6
0.076-0.068	12-48	28.5	26.2	29.8
0.067-0.061	12-48	28.5	26.2	29.8
0.060-0.048	12-48	28.7	26.4	30.1
0.047-0.038	12-48	29.1	26.6	30.4
0.037-0.030	12-48	29.5	27.0	30.9
0.029-0.024	12-48	29.9	27.3	31.3
0.023-0.019	12-36	30.5	27.7	31.8
0.018-0.017	12-36	31.1	28.3	32.6
0.016-0.015	12-36	31.8	28.9	33.5
0.014	12-24	32.7	29.7	34.6
0.013-0.012	12-24	33.6	30.4	35.5
0.011	12-24	34.6	31.3	36.7
0.010-0.0095	12-24	35.6	32.3	38.0
0.009-0.0085	12-20	36.8	33.4	39.5
0.008-0.0075	12-20	38.1	34.6	41.1
0.007	12-18	39.5	35.9	42.9
0.006	12-18	41.0	37.2	47.0

* Minimum length, 60 inches. † Maximum diameter, 24 inches.

Screw Machine Stock: 5000 lb and over.

Diam. (in.) or distance across flats	—Round— R317-T4, 17S-T4	—Hexagonal— R317-T4	—Hexagonal— 17S-T4
0.125	48.0	...	...
0.156-0.203	41.0	...	...
0.219-0.313	38.0	...	...
0.344	37.0	...	47.0
0.375	36.5	45.5	44.0
0.406	36.5	...	...
0.438	36.5	45.5	44.0
0.469	36.5	...	...
0.500	36.5	45.5	44.0
0.531	36.5	...	...
0.563	36.5	...	41.5
0.594	36.5	...	...
0.625	36.5	43.0	41.5
0.656	36.5	...	...
0.688	36.5	...	41.5
0.750-1.000	35.5	40.5	39.0
1.063	35.5	...	37.5
1.125-1.500	34.5	39.0	37.5
1.563	34.5	...	37.5
1.625	33.5	...	36.5
1.688-2.000	33.5	...	...
2.125-2.500	32.5	...	...
2.625-3.375	31.5	...	...

LEAD

(Prices to jobbers, fob Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more, $27.25 per cwt.; add 50c per cwt., 10 sq ft to 140 sq ft; $1.25, less than 10 sq ft; $1, circles and segments. Pipe: Full coils, $27.25 per cwt; cut coils, $27.50. Traps and Bends: List price plus 80%.

ZINC

Sheets, 22.00-22.50c, fob mill, 36,000 lb and over. Ribbon zinc in coils, 20.75-21.50c, fob mill, 36,000 lb and over. Plates, not over 12-in., 19.75-20.50c; over 12-in., 20.75-21.50c.

NICKEL

(Base prices, fob mill.)

Sheets, cold-rolled, 60.00c. Strip, cold-rolled 66.00c. Rods and shapes, 56.00c. Plates 58.00c. Seamless tubes, 89.00c.

MONEL

(Base prices, fob mill.)

Sheets, cold-rolled 47.00c; Strip, cold-rolled, 50.00c. Rods and shapes, 45.00c. Plates, 46.00c. Seamless tubes, 80.00c. Shot and blocks, 40.00c.

MAGNESIUM

Extruded Rounds, 12 in. long, 1.312 in. in diameter, less than 25 lb, 52.00-56.00c; 25 to 99 lb, 42.00-46.00c; 100 lb to 4000 lb., 35.00-36.00c.

Plating Materials

Chromic Acid: 99.9%, flake, fob Philadelphia, carloads, 26.00c; 5 tons and over 26.50c; 1 to 5 tons, 27.00c; less than 1 ton, 27.50c.

Copper Anodes: Base, 2000 to 5000 lb; fob shipping point, freight allowed: Flat untrimmed 33.84c; oval 33.34c; electrodeposited, 31.09c; cast, 30.12c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 46.00c, fob Niagara Falls, N. Y.

Sodium Cyanide: 96-98%, ½-oz ball, in 200 lb drums, 1 to 900 lb, 16.00c; 1000 to 19,900 lb, 15.00c, fob Niagara Falls, N. Y.

Copper Carbonate: 54-56% metallic Cu; 50 lb bags, up to 250 lb, 26.25c; over 250 lb, 25.25c, fob Cleveland.

Nickel Anodes: Rolled oval, carbonized, carloads, 56.00c; 10,000 to 30,000 lb, 57.00c; 3000 to 10,000 lb, 58.00c; 500 to 3000 lb, 59.00c; 100 to 500 lb, 61.00c; under 10 lb, 64.00c; fob Cleveland. Add 1 cent for rolled depolarized.

Nickel Chloride: 100-lb kegs, 26.50c; 275-lb, or 500-lb bbl, 24.50c, fob Cleveland, freight allowed on barrels, or 3 or more kegs.

Tin Anodes: Bar, 1000 lb and over 119.00c; 500 to 999 lb, 119.50c; 200 to 499 lb, 120.00c; less than 200 lb, 121.50c; ball, 1000 lb and over, 121.25c; 500 to 999 lb, 121.75c; 200 to 499 lb, 122.25c; less than 200 lb, 123.75c fob Sewaren, N. J.

Sodium Stannate: 25 lb cans only, less than 100 lb, to consumers 71.8c; 100 or 300 lb drums only, 100 to 500 lb, 63.6c; 600 to 1900 lb, 61.2c; 2000 to 9900 lb, 59.4c. Prices fob Sewaren, N. J.

Zinc Cyanide: 100-lb drums 39.25c, fob Cleveland; 39.00c, Detroit; 38.00c, fob Philadelphia.

Stannous Sulphate: Less than 2000 lb, in 100 lb kegs, 100.00c, in 400 lb bbl. 99.00c; more than 2000 lb, in 100 lb kegs, 99.00c, in 400 lb bbl, 98.00c, f.o.b. Carteret, Wis.

Scrap Metals

BRASS MILL ALLOWANCES

(New price schedule, effective as of Nov. 19, being prepared by brass mills.)
Prices in cents per pound for less than 15,000 lb fob shipping point.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	21.125	21.125	20.375
Yellow brass	18.000	17.750	17.125
Commercial Bronze			
95%	20.125	19.875	19.375
90%	19.750	19.500	19.000
Red brass			
85%	19.750	19.500	19.000
80%	19.500	19.250	18.750
Best Quality (71-79%)	19.000	18.750	18.250
Muntz Metal	17.250	17.000	16.500
Nickel, silver, 10%	19.625	19.375	9.813
Phos. bronze, A.	22.625	22.375	21.375
Naval brass	17.750	17.500	17.000
Manganese bronze	17.750	17.500	16.875

BRASS INGOT MAKERS BUYING PRICES

(Cents per pound, fob shipping point, carload lots)

No. 1 copper 19.75, No. 2 copper 18.75, light copper 17.75, composition red brass 17.00, auto radiators 14.25, heavy yellow brass 13.00, brass pipe, 14.00.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 20.50-21.00, No. 2 copper 19.50-20.00, light copper 18.50-19.00, refinery brass (60% copper), per dry copper content 18.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots or more)

Copper and Brass: Heavy copper and wire No. 1 18.00-18.50, No. 2 17.00-17.50, light copper 16.00-16.50, No. 1 composition red brass 15.25-15.50, No. 1 composition turnings 14.75-15.00, mixed brass turnings 8.75-9.00, new brass clippings 15.00-15.50, No. 1 brass rod turnings 12.00-12.50, light brass 8.25-8.75, heavy yellow brass 11.00-11.25, new brass rod ends 12.50-13.00, auto radiators, unsweated 12.75-13.00, cocks and faucets 12.25-12.50, brass pipe 12.75-13.25.

Lead: Heavy 19.50-20.00, battery plates 12.25-12.75, linotype and stereotype 18.00-18.50, electrotype 16.50-17.00, mixed babbitt 15.75-16.25, solder joints, 19.75-20.25.

Zinc: Old zinc 10.00-10.50, new die cast scrap 9.00-9.25, old die cast scrap 6.75-7.25.

Tin: No. 1 pewter 65.00-67.00, block tin pipe 83.00-84.00, No. 1 babbitt 51.00-54.00, siphon tops 50.00-52.00.

Aluminum: Clippings 2S 16.00-16.50, old sheets 12.50-13.00, crankcase 12.50-13.00, borings and turnings 6.00-6.50, pistons, free of struts, 12.50-13.00.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
Oct. Avg.	23.50	19.325	15.173	103.00	16.846	37.423	40.00	77.226
Nov. 1-6	23.50	21.30–21.35	15.50	103.00	17.00	38.50	40.00	74.75
Nov. 8-11	23.50	21.30–21.35	15.50	103.00	17.00	38.50	40.00	74.25
Nov. 12-15	23.50	21.30–21.35	15.50–17.50	103.00	17.00	38.50	40.00	74.25
Nov. 16-18	23.50	21.30–21.35	17.50	103.00	17.00	38.50	40.00	74.25
Nov. 19-25	23.50	21.30–21.35	17.50	103.00	17.00	38.50	40.00	73.75

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. E. St. Louis; Zinc, prime western, del. St. Louis; Tin, Straits, del. New York; Aluminum, primary ingots, 99%, del.; Antimony, bulk, fob Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery, unpacked; Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

OPEN MARKET PRICES, IRON AND STEEL SCRAP

Prices are dollars per gross ton, including broker's commission, delivered at consumer's plant except where noted.

PITTSBURGH

No. 1 Heavy Melt. Steel	$42.50-43.00*
No. 2 Heavy Melt. Steel	42.50-43.00*
No. 1 Busheling	42.50-43.00*
Nos. 1, 2 Bundles	42.50-43.00
No. 3 Bundles	40.50-41.00
Machine Shop Turnings	37.50-38.00
Mixed Borings, Turnings	37.50-38.00
Short Shovel Turnings.	38.00-39.50
Cast Iron Borings	39.50-40.00
Bar Crops and Plate	49.00-50.00
Low Phos. Steel	49.50-50.00
Heavy Turnings	39.50-40.00

Cast Iron Grades

No. 1 Cupola	65.00-66.00
Machinery Cast	72.00-73.00
Charging Box Cast	61.00-62.00
Heavy Breakable Cast.	60.00-61.00
Malleable	74.00-75.00
Brake Shoe	57.50-58.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.50-44.00
R.R. Malleable	75.00-80.00
Axles	55.25-56.25
Rails, Rerolling	59.00-60.00
Rails, Random Lengths	56.00-57.00
Rails, 3 ft and under.	60.00-61.00
Rails, 18 in. and under	61.50-62.00
Railroad Specialties	56.50-57.50
Uncut Tires	54.50-55.00
Angles, Splice Bars	53.00-54.00

* Plus applicable freight springboard.

CLEVELAND

No. 1 Heavy Melt. Steel	$42.00-42.50*
No. 2 Heavy Melt. Steel	42.00-42.50*
No. 1 Busheling	42.00-42.50*
Nos. 1 & 2 Bundles	42.00-42.50*
Machine Shop Turnings	37.00-37.50
Mixed Borings, Turnings	36.50-38.50
Short Shovel Turnings.	38.00-38.50
Cast Iron Borings	38.00-38.50
Bar Crops and Plate	47.00-47.50
Punchings & Plate Scrap	47.00-47.50
Heavy Turnings	42.00-43.00
Alloy Free Turnings	40.00-41.00
Cut Structurals	48.50-51.50

Cast Iron Grades

No. 1 Cupola	75.00-77.00
Charging Box Cast	62.00-64.00
Stove Plate	65.00-67.00
Heavy Breakable Cast.	57.00-62.00
Unstripped Motor Blocks	62.00-64.00
Malleable	79.00-81.00
Brake Shoes	55.00-57.00
Clean Auto Cast	75.00-77.00
No. 1 Wheels	64.00-66.00
Burnt Cast	59.00-61.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.00-44.00*
R.R. Malleable	80.00-82.00
Rails, Rerolling	60.00-66.00
Rails, Random Lengths	60.00-61.00
Rails, 3 ft and under.	63.00-66.00
Cast Steel	55.00-57.00
Railroad Specialties	58.00-60.00
Uncut Tires	58.00-59.00
Angles, Splice Bars	61.00-63.00

* Plus applicable freight springboard on earmarked material.

VALLEY

No. 1 Heavy Melt. Steel	$42.50-43.00*
No. 2 Heavy Melt. Steel	42.50-43.00
No. 1 Bundles	42.50-43.00
Machine Shop Turnings	37.00-39.00
Short Shovel Turnings.	39.00-39.50
Cast Iron Borings	38.50-39.00
Low Phos.	48.50-50.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	43.00-44.00*

* Plus applicable freight springboard.

MANSFIELD

Machine Shop Turnings	$37.50-38.00
Short Shovel Turnings.	39.50-40.00

CINCINNATI

No. 1 Heavy Melt. Steel	$42.00
No. 2 Heavy Melt. Steel	42.00
No. 1 Busheling	42.00
Nos. 1 & 2 Bundles	42.00
Machine Shop Turnings	36.00
Mixed Borings, Turnings	36.00
Short Shovel Turnings.	38.00
Cast Iron Borings	37.00

Cast Iron Grades

No. 1 Cupola Cast	63.00
Charging Box Cast	53.00
Heavy Breakable Cast.	59.00
Stove Plate	55.00
Unstripped Motor Blocks	56.00
Brake Shoes	50.00
Clean Auto Cast	63.00
Drop Broken Cast	71.00

Railroad Scrap

No. 1 R.R. Heavy Melt	43.00
R.R. Malleable	75.00
Rails, Rerolling	62.00
Rails, Random Lengths	58.00
Rails, 18 in. and under	63.00

DETROIT

(Brokers' buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$37.50-38.00
No. 1 Busheling	37.50-38.00
Nos. 1 & 2 Bundles	37.50-38.00
No. 3 Bundles	37.50-38.00
Machine Shop Turnings	31.50-32.00
Mixed Borings, Turnings	31.50-32.00
Short Shovel Turnings.	32.50-33.00
Cast Iron Borings	32.50-33.00
Punchings & Plate Scrap	42.50-43.00

Cast Iron Grades

No. 1 Cupola Cast	60.00-65.00
Heavy Breakable Cast.	54.00-59.00
Clean Auto Cast	60.00-65.00

BUFFALO

No. 1 Heavy Melt. Steel	$48.00-49.00
No. 2 Heavy Melt. Steel	41.75-42.25
No. 1 Busheling	41.75-42.25
No. 1 & 2 Bundles	41.75-42.25
Machine Shop Turnings	39.00-40.00
Mixed Borings, Turnings	39.00-40.00
Cast Iron Borings	39.00-40.00
Short Shovel Turnings.	40.00-41.00
Low Phos.	49.00-51.00

Cast Iron Grades

No. 1 Cupola	66.00-68.00
Heavy Breakable Cast.	55.00-57.00
Malleable	70.00-75.00
Clean Auto Cast	70.00-72.00

Railroad Scrap

Rails, 3 ft. and under.	59.00-61.00
Railroad Specialties	58.00-60.00

PHILADELPHIA

No. 1 Heavy Melt. Steel	$45.00-45.50
No. 2 Heavy Melt. Steel	41.50
No. 1 Busheling	41.50
Nos. 1 & 2 Bundles	41.50
No. 3 Bundles	39.50
Machine Shop Turnings	37.50
Mixed Borings, Turnings	37.50
Short Shovel Turnings.	38.50-39.00
Bar Crop and Plate	49.00-51.00
Punchings & Plate Scrap	49.00-51.00
Cut Structurals	49.00-51.00
Elec. Furnace Bundles.	47.00-48.00
Heavy Turnings	45.50-46.50
No. 1 Chemical Borings	46.00-46.50

Cast Iron Grades

No. 1 Cupola Cast	63.00-65.00
No. 1 Machinery Cast.	67.00-68.00
Charging Box Cast	64.00-65.00
Heavy Breakable Cast.	62.00-62.50
Unstripped Motor Blocks	59.50
Malleable	80.00-81.00
Clean Auto Cast	64.00-65.00
No. 1 Wheels	69.00-70.00

NEW YORK

(Brokers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$39.00
No. 2 Heavy Melt. Steel	37.00
No. 1 Busheling	37.00
Nos. 1 & 2 Bundles	37.00
No. 3 Bundles	35.00
Machine Shop Turnings	29.00-29.50
Mixed Borings, Turnings	29.00-29.50
Short Shovel Turnings.	30.00-31.50
Punchings & Plate Scrap	41.00-42.00
Cut Structurals	41.00-42.00
Elec. Furnace Bundles.	41.00-42.00

Cast Iron Grades

No. 1 Cupola Cast	57.00-58.00
Charging Box Cast	57.00-58.00
Heavy Breakable	58.00
Unstripped Motor Blocks	53.50-54.50
Malleable	68.00-69.00

BOSTON

(Fob shipping point)

No. 1 Heavy Melt. Steel	$38.90
No. 2 Heavy Melt. Steel	34.40
No. 1 Bundles	34.40
No. 1 Busheling	34.40
Machine Shop Turnings	29.90
Mixed Borings, Turnings	29.90
Short Shovel Turnings.	31.90
Bar Crops and Plate	40.00-41.00
Punchings & Plate Scrap	40.00-41.00
Chemical Borings	38.00-39.00

Cast Iron Grades

No. 1 Cupola Cast	60.00-65.00
Heavy Breakable Cast.	55.00-58.00
Stove Plate	54.00-55.00
Unstripped Motor Blocks	50.00-52.00
Clean Auto Cast	54.00-56.00

CHICAGO

No. 1 Heavy Melt. Steel	$41.50-42.00
No. 2 Heavy Melt. Steel	41.50-42.00
No. 1 Bundles	41.50-42.00
No. 2 Bundles	41.50-42.00
No. 3 Bundles	39.50-40.00
Machine Shop Turnings	36.50-37.00
Mixed Borings, Turnings	36.50-37.00
Short Shovel Turnings.	38.50-39.00
Cast Iron Borings	37.50-38.00
Bar Crops and Plate.	47.00-48.00
Punchings	48.00-49.00
Elec. Furnace Bundles.	44.50-45.00
Heavy Turnings	41.00-41.50
Cut Structurals	46.50-47.00

Cast Iron Grades

No. 1 Cupola Cast	70.00-71.00
Clean Auto Cast	70.00-71.00
No. 1 Wheels	60.00-62.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	45.00-46.00
Malleable	81.00-82.00
Rails, Rerolling	70.00-71.00
Rails, Random Lengths	59.00-60.00
Rails, 3 ft and under.	60.00-61.00
Rails, 18 in. and under	64.00-65.00
Railroad Specialties	55.50-56.50
Angles, Splice Bars	56.50-57.50

ST. LOUIS

No. 1 Heavy Melt. Steel	$44.00-45.00
No. 2 Heavy Melt. Steel	40.00-41.00
Machine Shop Turnings	35.00-36.00
Short Shovel Turnings.	36.50-37.50

Cast Iron Grades (Fob shipping point)

No. 1 Cupola Cast	65.00-66.00
Mixed Cast	56.00-58.00
Heavy Breakable Cast.	59.00-60.00
Brake Shoes	60.00-61.00
Clean Auto Cast	65.00-67.00
Burnt Cast	59.00-60.00

Railroad Scrap

R.R. Malleable	71.00-72.00
Rails, Rerolling	63.00-65.00
Rails, Random Lengths	56.00-59.00
Rails, 3 ft and under.	60.00-61.00
Uncut Tires	51.00-52.00
Angles, Splice Bars	54.00-56.00

BIRMINGHAM

No. 1 Heavy Melt. Steel	$39.50
No. 2 Heavy Melt. Steel	39.50
No. 1 Busheling	39.50
Nos. 1 & 2 Bundles	39.00
No. 3 Bundles	37.00
Long Turnings	24.50
Short Shovel Turnings.	26.00-27.00
Cast Iron Borings	25.00
Bar Crops and Plate	40.00
Cut Structurals	38.50

Cast Iron Grades

No. 1 Cupola Cast	63.00
Stove Plate	60.00-62.00
No. 1 Wheels	59.00-61.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	38.00
R.R. Malleable	nom.
Axles, Steel	50.00
Rails, Rerolling	53.00-55.00
Rails, Random Lengths	45.00-48.00
Rails, 3 ft and under.	53.00-55.00
Angles and Splice Bars	52.00-53.00

SAN FRANCISCO

No. 1 Heavy Melt. Steel	*$27.50
No. 2 Heavy Melt Steel	*27.50
No. 1 Busheling	*27.50
Nos. 1 & 2 Bundles	*27.50
No. 3 Bundles	*24.50
Machine Shop Turnings	*18.00
Bar Crops and Plate	*27.50
Cast Steel	*27.50
Alloy Free Turnings	*18.00
Cut Structurals	*27.50

Cast Iron Grades

No. 1 Cupola Cast	50.00-65.00

Railroad Scrap

No. 1 Heavy Melting	*28.50
Axles	*34.00
Rails, Random Lengths	*29.00

* Fob California shipping point.

SEATTLE

No. 1 Heavy Melt. Steel	$29.00-30.00
No. 2 Heavy Melt. Steel	29.00-30.00
No. 1 Busheling	29.00-30.00
Nos. 1 & 2 Bundles	29.00-30.00
No. 3 Bundles	24.50
Machine Shop Turnings	21.00-22.50
Mixed Borings, Turnings	21.00-22.50
Punchings & Plate Scrap	35.00
Cut Structurals	26.00-28.00

Cast Iron Grades

No. 1 Cupola Cast	50.00
Heavy Breakable Cast.	35.00
Stove Plate	30.00
Unstripped Motor Blocks	32.50
Malleable	40.00
Brake Shoes	35.00
Clean Auto Cast	40.00
No. 1 Wheels	37.50-40.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	28.50
Railroad Malleable	30.00
Rails, Random Lengths	30.00-32.00
Angles and Splice Bars	28.50

LOS ANGELES

No. 1 Heavy Melt. Steel	$27.50
No. 2 Heavy Melt. Steel	27.50
Nos. 1 & 2 Bundles	27.50
Machine Shop Turnings	20.00
Mixed Borings, Turnings	15.50-16.00
Puuchings & Plate Scrap	28.00
Elec. Furnace Bundles	28.00

Cast Iron Grades

No. 1 Cupola Cast	50.00-55.00

HAMILTON, ONT.

(Ceiling prices, delivered)

Heavy Melt.	$23.00
No. 1 Bundles	23.00
Mechanical Bundles	21.00
Mixed Steel Scrap	19.00
Mixed Borings, Turnings	17.00
Rails, Remelting	23.00
Rails, Rerolling	26.00
Bushelings	17.50
Bushelings, new factory, prep'd	21.00
Bushelings, new factory, unprep'd	16.00
Short Steel Turnings	17.00

Cast Iron Grades*

No. 1 Cast	48.00-50.00
No. 2 Cast	44.00-45.00

* Removed from price control Aug. 9, 1947; quoted on basis of fob shipping point.

DRAPER CORPORATION world's largest loom manufacturer

LOWERS PRODUCTION COSTS WITH

J & L COLD-FINISHED JALCASE STEEL

J&L STEEL

Mr. Joseph Whalley holds a shuttle from a modern Draper high-speed rayon loom to show the Jalcase tips.—Demonstration Room in Draper Corporation's modern plant, Hopedale, Massachusetts.

Shuttle Tips* made of JALCASE last longer . . . are easier to machine and heat treat.

Most likely the fabric in your broadcloth or oxford shirt was woven on a Draper loom, because Draper Corporation is the world's largest manufacturer of cotton and rayon looms. —And on many of the shuttles in these famous looms, the tips are made from J&L COLD-FINISHED JALCASE, the *original* open-hearth free-machining steel.

These tips must withstand *millions* of blows from the "pickers" that send the shuttle flying back and forth across the loom as many as *225 times a minute*. The steel must have uniform heat-treating characteristics to produce tips with *hard* points, *soft* shoulders and *tough* stems. Besides, Draper wants a steel that machines freely to a smooth finish at high speeds, and a steel that conserves tool life. That's why Draper uses J&L COLD-FINISHED JALCASE. It reduces production costs!

Here is a steel that is practically "tailor-made" to your requirements. From the ten grades of JALCASE, you can select just the right properties that suit *your* manufacturing conditions best. The result is: Higher production . . . Longer tool life . . . A better product. No wonder that J&L COLD-FINISHED JALCASE has been the *leading free-machining steel* for more than 25 years!

We have just published a new booklet describing the ten grades of J&L COLD-FINISHED JALCASE Steel. Let us send you a copy. It's free. The coupon is for your convenience.

Jones & Laughlin Steel Corporation
404 Jones & Laughlin Building
Pittsburgh 19, Pennsylvania

Please send me your new booklet on J&L COLD-FINISHED JALCASE—the *original*, open-hearth, free-machining steel.

NAME_____

ADDRESS_____

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JONES & LAUGHLIN STEEL CORPORATION

From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY *and* JALLOY *(hi-tensile steels).*

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURALS AND PLATES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS

Sheets, Strip . . .

Carnegie-Illinois revises extras on silicon sheets and zinc-coated products

Sheet Prices, Page 118

Pittsburgh — Extension of eight of the twelve voluntary steel allocations program for six months past the previously established expiration date of Feb. 28, 1949, and probability other programs, with few exceptions, will similarly be extended, except for perhaps minor tonnage adjustments, have made it possible for steel producers to establish mill allotments on a relatively firm basis through March. Government and industry officials are reviewing each allocation program in light of probable changed steel requirements since monthly tonnage commitments were agreed upon earlier this year. Additional programs, such as mining machinery, are being considered, while increased tonnages for petroleum group and others will be discussed and acted upon in the near future. Steel allocations for warm air furnaces and prefabricated housing reportedly have been dropped.

Trade authorities are hopeful that the Federal Trade Commission will write an order to the effect that a legal price shall be the delivered quotation (mill price plus freight), with freight absorption to be permitted, whether systematically or not, with the proviso that the consumer shall have the right to purchase on a mill price basis and elect method of transportation of the product to his plant. Such a pricing system would eliminate any possibility of "phantom" freight, enable producers to meet competition in any area and, at the same time, retain natural advantages of consumers located in vicinity of steel producing centers. Since the Supreme Court decision was directed specifically to the cement industry, such action on part of FTC would appear to be one "out" in clarifying the muddled price situation.

Carnegie-Illinois Steel Corp. revised its silicon sheet extra card, effective Nov. 22, to cover special testing specifications which a few customers contend are necessary to meet their requirements, and to discourage other consumers from so specifying when not absolutely necessary. The new extras are as follows: Permeability, 50 cents per 100 pounds; ductility, 25 cents; tensile testing for reporting only, 25 cents and 35 cents when meeting specific minimum or maximum values on 22 gage and thinner, for 21 gage and thicker 25 cents; Rockwell hardness, 10 cents; space factor, 25 cents; resistivity, 25 cents; and interlamination resistance, 25 cents.

Wheeling Steel Corp. and Carnegie-Illinois have revised coating extras on galvanized sheets and other products in accordance with a formula by which these products are automatically advanced or reduced depending upon current price of zinc. However, the formula apparently is not uniform among all producers as indicated by differences in coating extras. These adjustments, in case of Carnegie-Illinois, amounted to average price advance of $2.50 a ton, or an increase of about 2 per cent. The price advance will affect about 1 per cent of total volume of sales of all company's steel products. The coating extra table for heavier than regular commercial coatings for galvanized flat sheets has been augmented to include zinc prices up to 25 cents per pound with percentages raised 20 per cent for each zinc price listed. Thus, with zinc at 17.50 cents per pound, 260 per cent must be added to extra for coating stipulated. The coating extra table for culvert sheets similarly has been augmented to include 25 cents in increment of 6 cents for each cent advance in zinc prices above the 5-cent base level. The coating extra tables on galvanized flat sheets and formed roofing and siding also have been expanded to include up to 25-cent zinc. The extras applicable to 17.50-cent zinc are presented below:

Coating Extras
Galvanized Flat Sheets
(dollars per 100 lb)

Gage			
9-14	15-23	24-27	28-32
0.33	0.65	0.98	1.39

Formed Roofing and Siding
(Extras per Square)

Gage							
29	28	26	24	22	20	18	16
1.03	1.03	1.03	1.03	1.17	1.30	1.30	1.88

New York — Sheet tonnage should not be greatly affected by the proposed shifts in the voluntary allocation program. Sheet requirements in the 26,000 tons monthly to be set aside for mining equipment will involve a relatively modest proportion of the total and will amount to little in the expansion of the barge and merchant ship programs. Sheet requirements actually should be greatly relieved by the termination Feb. 28 of the voluntary programs for warm air heating, pre-fabricated housing and anthracite coal industry equipment, totaling in all 41,579 tons of steel monthly with the major portion in light sheet products, especially for warm air heating. On the other hand, however, this relief may be whittled down a bit by the suggested grain storage program, which agricultural spokesmen claim should take 50,000 tons of sheet metal. Steel industry representatives have asked for a more specific report on the quantity and type of steel required.

Despite uncertainty as to what would be required in the way of certified tonnage, one large independent has set up quotas for the entire first quarter and some other producers for the first two months. At the same time, some mills have not ventured beyond January.

Most mills have revised schedules on galvanized sheets and other zinc coated products as a result of further recent increase in the price of zinc. Hence, as quoted by one mill coating extra with a zinc price of over 15c to 16c is 66c per hundred pounds; over 16c to 17c, 72c; over 17c to 18c, 78c; over 18c to 19c, 84c; over 19c to 20c, 90c; over 20c to 21c, 96c; over 21c to 22c, $1.02; over 22c to 23c, $1.08; over 23c to 24c, $1.14; and over 24c to 25c, $1.20.

Boston — With hot rolled strip prices higher through upward adjustment of extras more cold finishing mills are advancing quotations accordingly; depending on the source of hot tonnage, some cold strip producers have virtually two prices for the same product and grade. Under current variances in sheet and strip prices and continued excess of demand over supply, slow progress is being made in cataloguing what eventually will be the market for finished steel in the northeastern area for individual mills. This will be an additional factor when production starts during first quarter at Detroit Steel Corp.'s, New Haven, Conn., cold strip mill with an annual capacity of 60,000 tons.

Chicago — Although users are currently pressing as hard for tonnage now as at any time in history, there is some speculation as to how quickly this pressure would dissolve if a general reversal of business conditions were to come about. One steel mill official believes from past experience that a tapering off in overall production would have no immediate repercussions on the mill level, but that order cancellations would be prompt after inventories had been built up to desirable size. His guess as to how much steel would be required to bring inventories up to strength is about four months' production at present consuming rate, but possibly only one month's output if the slump for end products were sharp. Many companies which are cutting back production now are doing so because of their materials supply troubles rather than because of any slump in demand, but there are also scattered instances where demand has dropped. These portents would probably be subject for greater concern than they are among steel men if other industries did not immediately jump at the chance to take up the slack.

With the advance in zinc price, coating extras of two district producers were automatically raised in conformity with the formula.

Granite City, Ill. — Granite City Steel Co., this city, has advanced the price of cold-rolled sheets $10 per ton to the basis of 4.70c per pound, mill.

Cincinnati — Sheet mills are trying to set up quotas for first quarter even though tonnage required for the voluntary allocations will not be definitely determined. Mill interests, however, see little hope for relief from the tight supply situation. Rolling was curtailed for the holiday, but steelmaking was unaffected.

Semifinished Steel . . .

Semifinished Prices, Page 118

Pittsburgh — Purchase of Phoenix-Apollo Steel Co. plant at Phoenix, Pa., by Kaiser-Frazer Corp. will not adversely affect supply of sheet bars for operation of the Phoenix-Apollo sheet mill at Apollo, Pa. This latter plant has been producing around 13,500 tons of sheets monthly. Unbalanced demand-supply situation existing in semifinished, particularly ingots for conversion, has prompted another steel foundry interest to utilize idle capacity for this purpose. Output of slabs at Jones & Laughlin Steel Corp.'s Pittsburgh Works is expected to be adversely affected beginning around Dec. 15 when the company plans to launch a rebuilding and expanding program of its three slab heating furnaces located at that plant. This program is expected to restrict steel available for production of sheets and tin plate.

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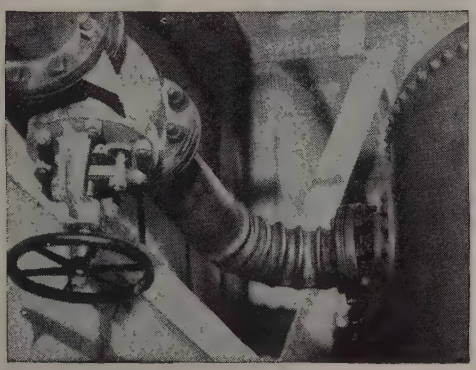

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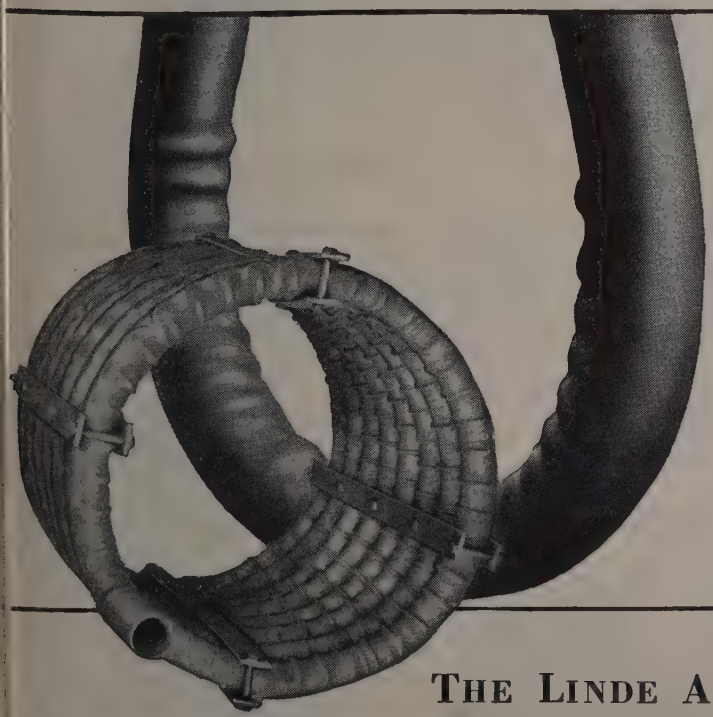

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Restudy Stainless Discounts

Cleveland — Dissatisfaction from warehouses over the new discount policies instituted several months ago by several leading producers in their sales of stainless steel to warehouses is causing reconsideration of these policies.

Because stainless had been a relatively new product, mills had given warehouses a discount on purchases of this product as an incentive to promote and sell it. With one producer this discount averaged approximately 10 per cent. Considering stainless to be firmly established as a steel product, and in view of present market conditions, several leading producers about three months ago either entirely removed discounts to warehouses or modified their discount policies. In a modification, one producer discontinued discounts of stainless sold for warehouse stocking but continued to give discounts on stainless sold by a warehouse for delivery directly from the mill to end-consumer. On the other hand, several small producers of stainless made no change in policy and continued to give discounts on all sales of stainless to warehouses.

By removal of discounts warehouses could make a profit only by buying in large quantities and selling in small quantities and adding an extra for small-quantity sales. Base quantity for purchase from the mills of one producer is 10,000 pounds.

When the new discount policies were adopted, warehouses viewed the move as one that would take business away from them. Opposition from warehouses has continued to mount, and now producers are restudying their sales policies. One producer now considering a revision indicated, however, that it probably would not return all the way to the policy of discounts on all sales of stainless to warehouses.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 118

Chicago — Inquiries for reinforcing steel are at low ebb, a situation which industry observers believe will be sharply reversed after the first of the year as appropriations are determined upon and government projects come to life from their present state of suspended animation. There is nothing to indicate that overall demand for steel is lower, new projects constantly supplanting those jobs which are abandoned because of high prices.

Los Angeles — Ability to produce does not yet approach reinforcing bar requirements. Despite the tapering off in heavy construction, the building of small-type concrete structures continues at a high level. Highway and other state construction work authorized under present programs has in most cases been placed or is pending and, when this runs out, increased supplies may become available.

Seattle — Demand for reinforcing bars continues unabated, according to rolling mill management. Pressure is particularly strong for small lots of less than 100 tons. Public works, industrial construction and new schools are consuming a heavy tonnage of bars.

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Steel Bars . . .

Bar Prices, Page 118

Williamsport, Pa. — Sweet's Steel Co. recently advanced prices $6 per ton on merchant rail steel bars to 5.10c per pound, Williamsport, and $8 per ton on light rails to $5.10 per 100 pounds.

Pittsburgh — Little headway has been made against cold-finished bar order backlogs in recent weeks, reflecting curtailed operations due to unbalanced hot-rolled bar inventories and continued heavy demand. Most cold finishers are booked through the first half of next year and are attempting to restrain forward ordering beyond that period on sizes under 5/8-inch. Some sellers are booked into the fourth quarter of 1949. There is some ground for the contention that cold-finished bar order backlogs are augmented by duplicate ordering.

Steel supply outlook for the first quarter is expected to be affected adversely by increasing tonnages scheduled for preferred industrial groups on the basis of the pressure that is being applied to add to the list of those industries coming within the scope of the voluntary allocation program. Trade leaders expect those programs already approved to be continued largely on the same tonnage basis past Feb. 28. Under the current mill pricing policy, there has been a definite trend among producers to direct sales efforts to consumers within local marketing areas.

Boston — Cold-finished bar producers in the nonintegrated group are more generally squeezed than those in the integrated group in the recent change to a mill pricing policy; this is notably true as to bessemer grade bars on which the lowest delivered price here shifted from a Buffalo to Johnstown mill. Hot-rolled carbon bar allocations, among the last to come through, are disappointing as to new volume; January is frequently all but blanked out by carryovers while tonnage tentatively allotted beyond that month will be subject to revision in schedules. Cold-rolled is sold well beyond hot carbon.

New York — While the matter of voluntary allocations is being clarified, there are still various details to be worked out and, as a result, sellers of hot carbon bars in general have not set up non-certified quotas for beyond February. In fact, some have still taken no action beyond January, and it might be added that little of the January tonnage involves new specifications, in view of the arrearages that will be carried over at the end of this year. Cold-drawn carbon bars represent a different matter, as non-certified consumer quotas have long since been set up for the entire quarter. Alloy bars, both hot and cold, are generally available within 12 to 15 weeks.

Los Angeles — Consumer pressure for steel bars has eased slightly, while at the same time more adequate supplies are coming into evidence. If these tendencies continue, supply and demand may attain some kind of balance. Much of the recent improvement is due to steadily increasing production of bar stock at the Niles, Calif., plant of Pacific States Steel Corp.

Tubular Goods . . .

Tuoular Goods Prices, Page 119

Boston — Reshuffling of distributors and sources of supply resulting from withdrawal by one eastern pipe mill has been completed at Worcester and Springfield following like moves at Boston. Most new accounts are taken over at former allocation levels and there is no loss of tonnage for distribution through jobbers; several industrial accounts in the areas affected have also changed sources of supply. Demand for merchant steel pipe is in excess of supply: first-quarter quota reductions in seamless are drastic, amounting in some cases to 20 per cent with January blanked out. Orders for cast iron pipe are heavy for delivery late in the year; extended deliveries with most foundries means that for installation next spring pipe must be bought now.

Pittsburgh—Galvanized pipe prices have been advanced $4 a ton (two points lower discount) to offset the recent two-cent per pound increase in zinc. This action applies on all sizes other than 3/8-inch which was raised $3 a ton. Wheeling Steel Corp. and Fretz-Moon Tube Co. adjusted their quotations Nov. 18; Spang-Chalfant, Nov. 19; and National Tube Co., Nov. 20. National Tube is the only interest here which has publicly announced a policy of automatic adjustment in galvanized pipe discount equivalent to $2 per ton for each 1-cent fluctuation in zinc prices. However, other interests apparently have adopted a similar pricing policy.

Jones & Laughlin Steel Corp. advanced galvanized pipe prices $4 per ton, Nov. 22, while Youngstown Sheet & Tube took similar action on Nov. 16. The latter company also advanced galvanized conduit $5 per ton, effective Nov. 22.

A. M. Byers Co. has raised galvanized wrought iron pipe prices $5 a ton (2½ points lower discount), effective as of Nov. 22.

Cleveland — Recent increase in the price of zinc resulted in a $4 a ton advance on galvanized pipe Nov. 18 by Republic Steel Corp., Cleveland.

Plates . . .

Plate Prices, Page 119

New York — Plates appear to be the largest single item required by the added new schedules proposed for voluntary allocation. Plates will be among the three largest requirements of the new 26,000-ton monthly mining machinery program and the largest item in the expanded barge and ship programs (expanded in each case by 5000 tons monthly). Plates also will be required for the ore-carrying cars to be used abroad in handling strategic material. This latter tonnage, however, is relatively small, with shipments extending over a period of five months.

While at least one eastern mill has set up quotas on non-certified tonnage for the entire first quarter and one or two other large sellers have set up quotas for the first two months of next year, the majority haven't taken action yet beyond January, and the January tonnage in some instances will represent no more than arrearages carried over from the end of the year.

Boston — Contracting volume of plate tonnage for open distribution next quarter retards production scheduling beyond January or February with the former month devoted heavily to carryovers. Considerable volume of certified orders for voluntary distribution reached mills too late to meet normal lead-time scheduling and this tonnage may be subject to delay. Demand for light carbon plates for tank building is far below requirements. More clad material is being used in several fabricating shops and floor plate demand has nearly filled most producers' first quarter schedules.

Chicago — Acting as a deterrent to interest in new tank construction is the general knowledge that order backlogs amount to close to a year's operations for most fabricators. Projecting demands over that long a period acts to retard some new work, and for the first time in the postwar period tank inquiries here show a seasonal decline. This easing means virtually nothing to fabricators who are unable to occupy their shops at capacity because of lack of plates.

Los Angeles — Possibly the tightest category of all, plates are in extremely short supply and apparently will remain so for some time to come. Mills are committed to heavy tonnages of plates under the voluntary allocations program, and there is vir-

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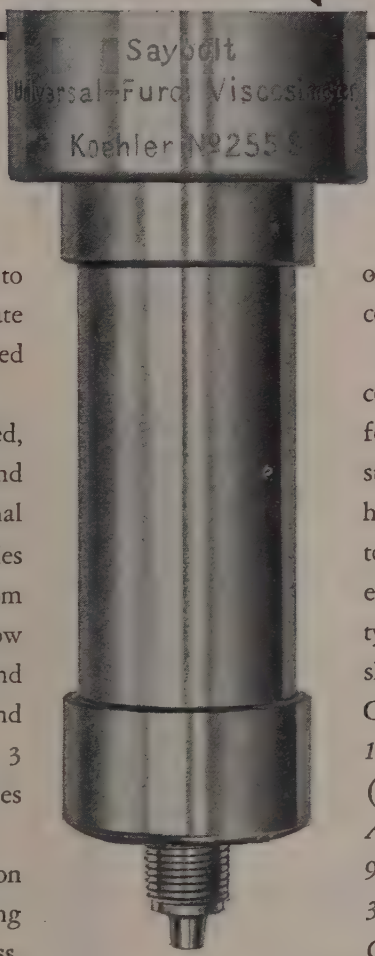

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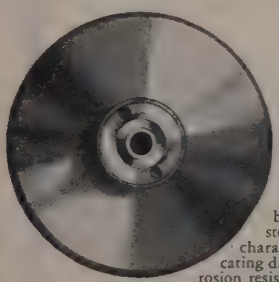

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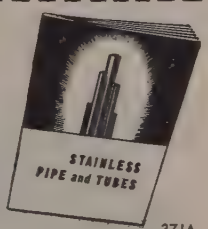

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tually no end in sight to the huge market for oil and water pipe. The Geneva plant is shipping substantial tonnages for oil pipe production here. Kaiser Steel will supply upwards of 450,000 tons during 1949 for the Texas-New York pipe line, although this will by no means absorb Fontana's entire plate output.

Seattle — Aside from 300 tons of liner plates for the Soap Lake siphon, Columbia Basin project, no large tonnages of plates are up for figures. Shops, in view of a constantly decreasing supply of materials, are confining operations to small contracts for tanks and boilers, and only the larger plants, with better supply sources, can figure on contracts involving sizable tonnages.

Structural Shapes . . .

Structural Shape Prices, Page 119

New York — Although seasonally off, as compared with a few weeks ago, structural activity is still fairly brisk, substantial work pending, particularly in the public field. Fabricators, meanwhile, are carrying heavy backlogs — backlogs that extend at least seven months in some instances.

Boston — Tentative Connecticut highway program for 1949 includes approximately 32 bridges, mostly small units. At least three states in the northern tier probably will continue to buy beams and spans for small units directly, projects requiring a minimum of shop fabricating. Few 1949 programs are definitely ready for estimates and new inquiry is slow. Backlogs with larger shops run from five to six months.

Chicago — Decreasing volume of construction work, which has for its explanation high cost and scarcity of materials, was spotlighted by a recent report that 13 per cent fewer building permits were issued in October for the Chicago area than in October, 1947, and that the October figure was about 20 per cent less than for the previous month. The decline, while not having the effect of making structural steel more plentiful, has brought a number of electrical and plumbing contractors out soliciting business. Construction as a whole, however, is far from being at a standstill, its form having shifted in an increasing degree toward small projects and government work. The electric generating industry is possibly the outstanding exception to the trend.

A recent leading award was of 550 tons for the Northern Indiana Public Service Co. for a power plant at Michigan City, Ind. Duffin Iron Co., this city, will supply the steel.

Los Angeles — Despite the fact that demand for structural shapes still is ahead of available supplies, the market is becoming spotty and more competitive. Cost factors have shelved many projects, and heavy, large-tonnage construction is off considerably in both public and private categories.

Seattle — Buyers state that steel mills are working on monthly rather than quarterly allocations awaiting clarification of government regulations or possible revision of the law by Congress. Supplies of shapes continue extremely short. Fabricators in this area report sizable backlogs.

Structural Bookings Decline

New York — Structural bookings in October declined about 11 per cent to 160,736 tons, according to American Institute of Steel Construction. Average bookings for first ten months are 165,342 tons, or 22 per cent greater than average for same months of 1947. Shipments last month were reported at 159,092 tons, and for the ten months, 1,636,804 tons against 1,567,176 tons for the corresponding period of last year. Backlog for the four months, beginning Nov. 1, amounted to 669,092 tons.

Tin Plate . . .

Tin Plate Prices, Page 119

Pittsburgh — First quarter production of tin plate is expected to be affected adversely as a result of the modernization program of hot or cold rolling mills and by revamping of slab heating furnace facilities scheduled by some integrated producers. These programs probably will substantially set back flat-rolled steel production schedules. At least one interest is attempting to build up a backlog of coils to help sustain tin plate production next quarter. Tin plate inventories held by consumers and producers have been well below normal operating levels for months, indicating that supplies available to consumers will remain restricted next quarter.

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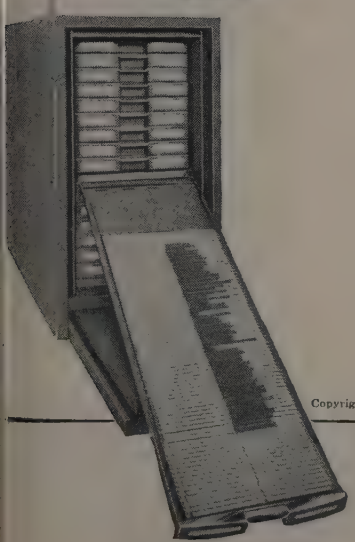

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Pig Iron . . .

Chester, Pa., furnace expected to be blown in not later than mid-December

Pig Iron Prices, Page 120

Philadelphia — Movement of domestic pig iron into this district for the month now closing is slightly heavier than for October, although supply still falls well short of requirements. The longshoremen's strike has delayed the receipt of a portion of the foreign iron that had been scheduled here for this month. Meanwhile, oven coke supply is exceedingly stringent, because of the repair program of the Swedeland, Pa., producer—a program that will not likely be completed before the middle of January.

The Chester, Pa., furnace of Allied Iron Works Inc. is expected to get into operation some time between Dec. 1 and the middle of that month. This iron, as indicateed in previous reports, will be used largely, if not entirely, for conversion into oil well spring pipe, the conversion to be done in the Pittsburgh district. The furnace will have a daily capacity of 400 tons, but until new blower equipment is installed some time in January, it appears doubtful if output will much exceed 250 tons daily. One interesting feature of the furnace, as it is now being rehabilitated, is that it will have carbon lining up to the mantle. It is believed that this will be the first furnace in the country to have such extensive use of such lining.

The furnace will produce basic, at the start at least, and will use ore to the complete exclusion of scrap. Ore is being brought in from Sweden, Spain, Morocco and Brazil. Three cargoes have been unloaded at Chester and some smaller shipments at Baltimore. The company is said to be fully covered on its ore requirements for 1949. The company also has accumulated a good supply of coke for meeting its early requirements, something well in excess of 20,000 tons.

H. A. Brassert & Co., New York, consulting engineers, have been in charge of the rehabilitation of the furnace, which was acquired by the owner late last spring from the government, and will continue in general charge of production, with James Gogler, formerly associated with Carnegie-Illinois Steel Corp., at the Edgar Thomson Works, Braddock, Pa., as general superintendent. Stanolin Gas & Oil Co. is the majority stockholder and the Brown Engineering Co. the minority stockholder.

More than $2 million is being spent on the rehabilitation of the furnace and property, with improvements including pig casting machinery, new water system, blowers, rehabilitation of unloading crane, dredging, and so forth.

New York — Most district foundries here report a continued shortage of pig iron, although they are in less pressing need than several weeks ago. This is ascribed in part to somewhat better supply, notwithstanding the recent interruption of importations of foreign iron as a result of the longshoremen's strike, and as being due in part to a decline in bookings. Jobbing foundries have reported a general falling off in bookings, and while most still have substantial backlogs, some have reached the point where they are actually curtailing operations to a certain extent.

Boston—Supply situation with malleable consumers has improved materially, Mystic furnace having completed its first monthly run of that grade and about to resume on foundry. While reserves held by shops covered by the Mystic co-operative contract are still limited, in more instances users are correcting iron-scrap ratios in some degree. Volume of iron from Buffalo and eastern Pennsylvania is restricted and will continue at around current levels through next quarter. Price for Mystic iron for that period is being established through November operating costs and is likely to advance.

Pittsburgh — Foundry interests state competition is growing keener and further reduction in order backlogs is noted. High operating costs have forced some foundries to price themselves out of old markets primarily involving welded stampings. Such items as stove parts, water heaters, bath tubs, and wash basins are produced to a growing extent by stamping concerns. Foundries also note an easing in requirements from heavy truck and bus industries and a slackening in orders from farm implement manufacturers. However there has been no letup in pressure

for merchant iron shipments. Some foundries frequently are forced to shut down for brief intervals due to the critical iron shortage that shows no signs of receding for months to come.

Weirton Steel Co. has blown in its No. 3 blast furnace, which has been out of operation for 46 days, for relining. Blowing out of American Steel & Wire Co.'s No. 1 blast furnace at the Donora Works leaves 42 out of 47 furnaces active in the Pittsburgh district.

Buffalo — While demands for merchant iron continue to exceed available supplies, less pressure is being exerted by foundries for deliveries. There are also further signs of a falling off in business among jobbing foundries. A number of larger operators no longer find it necessary to distribute their work among outsiders. An increased number of complaints are heard from foundries over the low silicon content in receipts. Allegations are made that one producer is not adhering to proper analysis in production methods.

Cincinnati — Shipments of pig iron show little, if any improvement. Backlogs of some jobbing foundries are smaller but demand for iron has not yet relaxed, most of them preferring a smaller proportion of scrap in the melt.

Chicago — With the blowing out of "E" furnace at Carnegie-Illinois Steel Corp.'s South Works a week ago, number of furnaces in blast in the district was reduced to 38. The furnace is down for relining, a job which will require between two and three months, according to present indications. Scheduled to go down late in December is a furnace of Inland Steel Co. which will be kept out of operation to conserve ore stocks during the winter. Foundry demand for iron continues at a high level and activity has picked up with some melters who not long ago were actively soliciting business. With pig stocks low, this increase is reflected in renewed interest in foundry scrap.

Iron Ore . . .

Iron Ore Prices, Page 120

New York — Brazilian iron ore, 68 to 69 per cent, has been increased one cent per unit to 19.50c, c.i.f. Atlantic ports. This reflects stiffening demand for this ore and slightly higher ocean rates. Swedish basic, 60 to 68 per cent, continues steady at 14.50c. Manganese ore, 48-50 per cent, is strong but unchanged at 67.60c to 72.60c, duty paid, f.o.b. cars at Eastern gulf ports. Chrome ore is unchanged, but weak in price. Stocks in this country have been accumulating with a result that there is little pressure for additional tonnage.

Cleveland — Consumption of Lake Superior iron ore increased to 7,398,055 tons in October from 6,965,392 tons in the previous month and compared with 7,150,860 tons in October, 1947, according to the Lake Superior Iron Ore Association, this city. This brought the total for the first ten months to 66,220,148 tons against 66,667,685 tons for the like 1947 period. United States furnaces accounted for 7,154,818 tons in October against 6,738,267 tons in October, bringing the 10-months total to 63,311,504 tons against 64,318,124 tons in the like period a year ago.

Total stocks of ore at the end of October amounted to 43,883,357 tons, an increase of 2,959,858 tons for the month and 2,242,411 tons over the total on hand a year ago. Of the Nov. 1 total, 5,264,252 tons were on Lake Erie docks in the United States, 36,673,108 tons at furnaces in this country and 1,945,997 tons at Canadian furnaces.

A net gain of two furnaces in blast in the United States was recorded during October, the total rising to 172 while the number idle was cut to 12. In Canada, 9 furnaces remained in blast while 1 remained idle.

Rails, Cars . . .

Track Material Prices, Page 119

New York — New York Central will close bids Dec. 3 on a maximum of approximately 6900 freight cars for its own lines and those of three of its subsidiaries, the Pittsburgh & Lake Erie, Indiana Harbor Belt Line and the Peoria & Eastern. This is the largest list to have appeared in the East in some time, with the trade anticipating the purchase of at least 5000 units, should the New York Central decide to go ahead. Meanwhile, the railroads continue to place a substantial number of cars with their own shops.

Scrap . . .

Scrap Prices, Page 124

New York — The New York scrap market is firm, except for a slight easing in low phos grades. Brokers are now paying $41 to $42, f.o.b. shipping point, for punchings and plate scrap, cut structurals and electric furnace bundles.

Disruption of shipments of imported scrap because of the lonshoremen's strike has delayed the delivery of substantial tonnages. However, leading consumers of melting steel have been able to round out current requirements by dipping into reserves in some cases. Most consumers have backlogs averaging around 45 days and despite the near approach of winter feel justified in falling back on inventories to some extent where necessary in order to maintain existing record operations, particularly in view of the fact that substantial foreign tonnage will be freed once the strike deadlock is broken.

There is no question, however, that the strike has set back the movement of foreign scrap into this country to a point where it will be difficult for shippers to get caught up for some time. Various cargoes have been delayed on the other side, pending definite word as to the ending of the strike in this country.

Pittsburgh — Open-hearth scrap grades continue to move at formula prices and no significant change is anticipated. Effort of relatively small consumers to augment inventories has been an important factor in preventing any price weakness. However, major integrated mills have inventories which are larger than those held at any previous time this year and they are not too concerned as to supply outlook over the winter months. These interests believe some weakness in scrap prices may develop in the early months of next year. A substantial tonnage of No. 2 bundles, originating in Florida, was offered here last week at $48, delivered. This is about $2 a ton below the previously offered price under the formula pattern. Considerable scrap tonnage normally shipped to this area is being diverted to Mexican steel mills under a government-sponsored buying program. Strike tie-up of eastern ports has brought shipments of German scrap to a halt. Abandonment of the effort to establish a centralized buying agency for German scrap is not expected to retard individual steel producer and broker negotiations for this material. Recent railroad awards of wheels and couplings have been in the price range of $56 to $56.50, not including commission; springs were sold at about $1 higher, whereas normally these items sell at identical price levels.

Boston — Scrap buying is light with prices generally unchanged. Cast grades are especially slow with larger consumers well covered, bulk of buying being by small shops in less favorable position. Scattered suspensions in shipments to steel scrap consumers develops from car congestion. Bulk of volume is at formula levels, although premiums have not disappeared entirely. Inspection for quality is more exacting.

Cleveland—Firmness characterized the scrap market here last week on

open-hearth and foundry grades. Prices were unchanged. One consumer which had counted on European rubble scrap to improve its scrap inventory position now is resigned to delay of such aid in view of the East Coast longshoremen's strike which has choked off imports. High rate of steel ingot production and the accompanying heavy need for scrap is expected to continue holding the scrap market steady and firm.

Chicago — Pricewise, the scrap market was unchanged last week although the tone was definitely stronger. One broker reported that foundries are probing into cast iron prices and are showing more interest in offers than has been seen for the past several weeks. He believes there will be little cast scrap buying until after the first of the year, however. Existence of fairly sizable stocks of steelmaking grades in mill yards makes speculation about future price trends risky, but the first taste of winter, which the Midwest states got recently, had an immediate effect on country scrap flow, bringing it to a complete standstill in some sections. As long as demand for steel holds up (and at present there is no sign of it easing) every delay in collection has a tendency to put pressure on for higher prices. Counteracting this pressure, however, is the steel-for-scrap prod which mills use to keep customers' scrap moving to furnaces.

Detroit—Perceptible weakness has developed in sales of short turnings, probably as the result of many rejections by mill buyers because of contamination. Formula price of $32.50 to $33 prevails, however. The market generally has an even tone, a growing slump in cast grades having been averted temporarily by Ford entering the market for this material. Foundries for the most part are not interested in buying, some of the jobbing shops being virtually closed. McLouth Steel Co. has begun laying down "earmarked" scrap for its downriver electric furnace plant, with one broker reportedly having been given exclusive rights for scrap supply. Trade comment filtering through to this territory indicates steel mills from the eastern seaboard west to Pittsburgh, particularly those receiving shipments of foreign scrap, have comfortable inventories and are buying nothing, taking in only earmarked scrap. Week-long shutdown of Briggs Mfg. Co.'s plants furnishing bodies to the Plymouth Division of Chrysler will result in slowing scrap movement from that source.

Cincinnati — Iron and steel scrap is moving steadily against commitments, but new tonnage buying is absent from the market. One district melter has announced withdrawal until Jan. 1 because of inventory situation. Prices are holding fairly steady at mill formula, and scrap continues to show strength in spite of spotty demand. Railroad specialties are a weak spot in the district market.

Los Angeles — A little relief finally is being felt in a scrap supply situation that in recent weeks had been growing steadily tighter. Auto wrecking dealers, who were a leading prewar source of scrap, are coming back into the market as the increasing

flow of new cars moves oldsters off the road. Prices are steady, with the exception of No. 1 cast, which in recent weeks has been backing down from its peak. Foundries with fixed-price contracts had suffered as cast iron grades spiraled upward to $60 and over. Pressure they exerted on suppliers, and dis-interest in further purchases at extreme levels, brought a turning point. Current rate on No. 1 cast is $50 to $55, and the undertone is easy.

Seattle — There is a fear in operating circles that mills may have to close during the winter unless steel scrap becomes available in larger volume. However, dealers are studying means for increasing shipments, among them a larger volume of automobile scrap and shipments from distant points, even at higher freight and handling costs.

While the market is nominally $29 to $30 per gross ton for No. 1 heavy, sales have been above $30.

Cast iron scrap is reported in fair supply, sufficient to enable foundries to maintain normal operations. Demand for foundry goods has declined, due to seasonal factors. Geneva has lighted another open hearth and deliveries of pig iron in this area are slightly improved. Foundries are currently reported to be paying $50 for cast iron scrap.

Warehouse . . .

Warehouse Prices, Page 121

Chicago — Reflecting the increase in zinc price and the corresponding increase in coating extras recently put into effect by district mills, warehouse prices for galvanized sheets have been raised from 10 cents per 100 pounds on the heavier gages to 35 cents per 100 pounds on the lightest. New warehouse price quoted by leading distributors for 10 gage is 7.15c per 100 pounds.

Demand upon warehouses is probably at an all-time high as the result of sustained production and reduction in mill quotas to customers. Only product in relatively good supply is stainless although even in this item stocks are not accumulating.

Cincinnati — Pressure for steel from warehouses is undiminished even though some fabricators extended the holiday shutdown. In recent weeks the stocks of cold-rolled bars, fairly abundant earlier in the year, have been drained to near-exhaustion. Calls for building steel follow a seasonal trend downward.

Seattle — Seasonal recession in demand is reported by wholesale jobbers, small shops having less work and in some instances contractors hesitate to bid because they cannot be assured a full supply of materials. Shipyards are in need of plates which continue critical while there is no improvement in sheet supply. Jobbing prices are steady, now being adjusted to all-rail shipment.

Canada Plans Steel Expansion

Toronto, Ont. — Federal government will finance the building of additional blast furnaces in Canada to provide iron for increased production of steel in an effort to relieve the serious shortage, according to a report from Ottawa.

Provision will be made in the forthcoming budget for the required expenditure, it is understood. It is further pointed out that the government will not operate the blast furnaces under public ownership, but they will be leased to Canada's large steel companies and it is believed the producers will eventually be given an opportunity to purchase the furnaces from the government.

Dominion Steel & Coal Corp., Sydney, N. S., is lining up a large-scale expansion program for submission to the government, according to word from Sydney. It is stated that the proposed program, based on results of a lengthy survey, still will be presented to Trade Minister C. D. Howe. C. W. Anson, general manager, declined to comment on details of the plans to be submitted to Ottawa, but Montreal interests stated that the expansion would be "in a general way."

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

820 tons, state bridge, Middlesex county, New Jersey, through Brann & Stuart, Philadelphia, to Bethlehem Steel Co.

310 tons, engineering building, University of New Hampshire, Durham, N. H., to Bethlehem Steel Co.; Volpe Construction Co., Boston, general contractor.

275 tons, plant addition, American Viscose Corp., Nitro, W. Va., to Bethlehem Steel Co.

200 tons, two 6-story apartment houses, Fleetwood, New York city, to Grand Iron Works Inc., that city.

100 tons, plant at Macon, Ga., Durkee Famous Foods Division of Glidden Co., Cleveland, to Ingalls Iron Works Co., Birmingham; Rust Engineering Co., Pittsburgh, general contractor.

STRUCTURAL STEEL PENDING

4425 tons, superstructure, Housatonic river bridge, Shelton-Derby, Conn.; nine steel girder spans, viaduct and three riveted steel deck truss spans over river; also four and five steel girder spans, viaduct and ramps respectively; bids Dec. 6, state highway commissioner, Hartford. Alternate, if girders are welded tonnage for that section is 1605 tons instead of 1875 tons estimated with total of 4155 tons.

3000 tons, two hangars, No. 3 and 4, respectively, with lean-tos, Idlewild field, New York, general contractors bids to be closed by the New York Port Authority, Dec. 15; alternate bids on steel and concrete construction will be considered.

1520 tons, Bergen Pines Hospital, Bergen county, New Jersey; low bid reported rejected as exceeding appropriation.

1000 tons, state office building, Hartford, Conn.; bids in, but project postponed, over appropriation.

400 tons, galvanized steel transmission towers, Seattle city light department; Columbia Steel Co., low.

300 tons, switch and bus racks, Seattle city light department; bids Nov. 24.

300 tons, also 80 tons reinforcing bars, Mt. Hood national forest project, Oregon; bids to Bureau of Public Roads, Portland, Oreg., Nov. 30.

185 tons, I-beams for slab bridge, state highway project, Concord, N. H.

175 tons, state hospital addition, Embreeville, Pa.; bids asked.

175 tons, plant addition, Seymour Mfg. Co., Seymour, Conn.

125 tons, addition to Scranton Times building, Scranton, Pa.; bids closed Nov. 23.

120 tons, transmission towers, municipal

power system; bids to Tacoma, Wash., early December.

110 tons, bridge repairs, Lawrence county, Pennsylvania; pending.

100 tons, two-span continuous girder bridge, Wilbur Cross Parkway, Hamden, Conn., Mariani Construction Co., New Haven, low, general contract.

Unstated, transmission towers; bids to Bonneville Power Administration, Portland, Oreg., Nov. 29.

Unstated, material for right powerhouse, Coulee dam; first bids rejected; new bids soon to Bureau of Reclamation, Denver.

REINFORCING BARS . . .

REINFORCING BARS PLACED

400 tons, motor ramp garage, Spokane, Wash.; to Northwest Steel Rolling Mills Inc., Seattle.

175 tons, addition to state school, Bellingham, Wash., to Bethlehem Pacific Coast Steel Corp., Seattle.

100 tons, addition to main library building, Seattle, to Bethlehem Pacific Coast Steel Corp., Seattle; S. S. Mullin Inc., Seattle, general contract.

100 tons, Sammamish river state bridge, Washington; to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

11,430 tons, Soap Lake siphon, Columbia Basin project; Utah Construction Co. and Winston Bros. Construction Co., joint low bidders, $7,614,729.

3500 tons, Corps of Engineers, Bismarck, N. Dak., inv. 47, bids Dec. 1; also, 580 tons steel sheet piling, inv. 49.

1600 tons, mat reinforcement, pavement, Wilbur Cross Parkway, U. S. Route 44, Orange, Woodbridge, New Haven, Hamden, North Canaan, Portland, Old Lyme, East Lyme and Seymour, Conn.; bids direct, state highway commissioner, Hartford, Dec. 6.

280 tons, Washington state road projects; bids to Olympia, Nov. 19.

Unstated, control and oil house, Snohomish, Wash. substation for Bonneville Power Administration; Ray R. Kelly & Co., Tacoma, low $141,600.

PLATES . . .

PLATES PENDING

3000 tons, Soap Lake siphon, Columbia Basin project; Utah Construction Co. and Winston Bros. Construction Co., joint low bidders.

PIPE . . .

CAST IRON PIPE PLACED

1225 tons, metropolitan district commission, Hartford, Conn., to United States Pipe & Foundry Co., Burlington, N. J.

CAST IRON PIPE PENDING

780 tons, 4 to 6 inch cast iron pipe, Spokane, Wash.; Pacific States Cast Iron Pipe Co., Provo, Utah, reported low.

255 tons, six and eight-inch, Newton, Mass.; bids Dec. 1.

STEEL PIPE PENDING

Unstated, 5950 feet 6 and 10 inch steel pipe, or alternatives; bids to Entiat, Wash., Nov. 26.

RAILS, CARS . . .

LOCOMOTIVES PLACED

Detroit Terminal, two 1000-horsepower diesel-electric switch engines, to the Electro-Motive Division, General Motors Corp., La Grange, Ill.

100 steam locomotives, India government; 60 to Montreal Locomotive Works and 40 to Canadian Locomotive Co.

RAILROAD CARS PLACED

Bangor & Aroostook, three coaches, to Pullman-Standard Car Mfg. Co., Chicago.

Chicago, Rock Island & Pacific, 100 seventy-ton covered hopper cars, to Pullman-Standard Car Mfg. Co., Chicago.

CONSTRUCTION AND ENTERPRISE

CALIFORNIA

LOS ANGELES—Union Hardware & Metal Co., Edward H. McLaughlin, president, East Los Angeles, plans to construct a $3,250,000 warehouse and office building.

LOS ANGELES—Triangle Steel Co. is the firm name under which Duluth Iron & Metal Co. has published a certificate that it is conducting business at 3691 Bandini Blvd., Vernon.

LOS ANGELES—Modern Tool & Die Corp. has been formed with a capital of $250,000 by John G. Buyser, John Gibson and Edgar A. Hastings, Los Angeles; representative is Tapper & Tapper, 542 S. Broadway, Los Angeles.

VERNON, CALIF.—Rich Steel Co., 701 Gibbons St., Los Angeles, has been issued a building permit for construction of a $50,000 warehouse building here at 2435 E. 37 St.

COLORADO

DENVER—Post Printing & Publishing Co., 1544 Champa St., has awarded a $1,120,000 contract to Mead & Mount Construction Co., Denver National Bldg., for construction of a printing plant on 14 and California Sts.

OHIO

AKRON—Summit Steel Products Inc. has been incorporated by C. E. Myers, agent, 203 S. Forge St., Paul Shaffer and J. R. MacGregor.

AKRON—Riaull Mfg. Co. has been incorporated by Fred Faull, Jess Rice, 750 Aberdeen Ave., and John E. Kaufman, attorney and agent, 935 Second National Bldg., to operate a tool and die shop.

AKRON — Air-Flo Compressor Co., W. V. Fischer, president, is starting pilot plant production of a new air compressor. American Crucible Co., 1305 Oberlin Ave., is producing the castings and bronze bearings and Rodney Welding Co., 336 Prospect St. is making the pressure tanks.

CINCINNATI—Campbell-Hausfeld Co., 217 S. State St., Harrison, is planning to build a $250,000 factory and foundry; plans by H. N. Hermann & Associates, 700 Enquirer Bldg.

CLEVELAND—Switches Inc. has been chartered through David M. Donley, C. I. T. Corp., Union Commerce Bldg., to manufacture electrical devices.

CLEVELAND—Metal Refiners Co. has been organized by Bingham W. Zellmer, attorney, 537 Leader Bldg. It is seeking a plant where it will engage in refining of secondary and primary nonferrous metals.

CLEVELAND—K. and K. Die & Mfg. Co. Ernest H. Krogmann, president, a new corporation, has acquired the plant at 1380 Hallcok Ct. N.E. to manufacture tools and dies.

CLEVELAND — Midwest Precision Casting Co. has been formed to purchase the assets of the J. & F. Castings Co., 2790 Grant Ave., and will continue to manufacture precision castings here. It plans some small expenditure for equipment at this time, but contemplates a major expansion program in about six months.

CLEVELAND—Fuerst Tinning Specialties Inc. has been incorporated by Richard L. Golobach, 9407 Forman Ave., Evelyn and Harold Fuerst, 18320 Highland Drive, Maple Heights, and is erecting a building at Lee and Telfair Rds. It specializes in the manufacture of restaurant equipment, such as sinks, and beverage coolers.

COLUMBIANA, O.—Columbiana Machine Co. has been organized by Raymond M. Snook, 122 E. Railroad St., O. C. Weber, 209 E. Friend St., and Joseph Magill, agent, 38 S. Main St.

NILES, O.—Mahoning Valley Steel Co. planning a $250,000 expansion and modern

ization program which will include installation of two breakdown mills and four finishing mills. The program will boost the plant's annual output capacity of 97,500 tons of hot-rolled sheets by more than 20 per cent.

PENNSYLVANIA

DU BOIS, PA.—Rockwell Mfg. Co., Pittsburgh, plans to alter its division buildings here and to build some manufacturing buildings on Liberty Blvd. to cost $500,000.

GROVE CITY, PA.—Cooper Bessemer Corp. plans to build two storage buildings on Lincoln Ave. to cost $100,000.

LEECHBURG, PA.—Allegheny Ludlum Steel Corp.'s plant was damaged by a $200,000 fire which burned out the central wiring system.

PHILADELPHIA—Surpass Leather Co., 9 and Westmoreland Sts., will spend $200,000 on alterations and modernization of its power plant; Ebasco Services Inc., 2 Rector St., New York, engineer.

PITTSBURGH—General Motors Corp., Fisher Body Division, Detroit, is planning to build a stamping plant on Camden Hill Rd. near here; Argonaut Realty Division, General Motors Corp., engineer and architect.

PITTSBURGH—Graybar Electric Co., Water St., plans to build a $500,000 distributing plant on Ridge Ave.; Hunting, Larsen & Dunnells, 1152 Century Bldg., architects.

PLYMOUTH MEETING, PA.—Philip Carey Mfg. Co. has awarded contracts for the construction of a $2,700,000 manufacturing plant; Knowles Associates, 19 Rector St., New York, engineers.

WASHINGTON

SEATTLE—Smithway Machine Co. plans a shop addition at 4617 Airport Way; Chauncey Wernecke, Central Bldg., engineer.

SEATTLE—City has awarded a $70,000 contract to Cascades Contractors and A. V. Phillips, Seattle, for Gorge diversion dam, Skagit power project.

SEATTLE—Great Northern and Northern Pacific Railways have awarded a $410,000 contract to N. W. White for construction of a power plant to service the King Street station.

SEATTLE—U. S. Engineer is planning a $65 million military construction job in Alaska which will include the erection of 500-man barracks and other structures at Fort Richardson and Ladd Field.

CANADA

VANCOUVER, B. C.—Hudson's Bay Co., department store, is planning to build an $850,000 addition.

POINTE DE BOIS, MAN.—Lithium Corp. of America, c/o F. F. Clarke, Rapid City, S. D., plans to build a $300,000 concentration plant for lithium carbonate at Cat Lake on Bird river.

MONCTON, N. B.—Sumner Propane Gas Ltd. is planning to erect a $100,000 bottling plant for propane gas.

ETOBICOKE, ONT.—Canadian Westinghouse Co. Ltd., 286 Sanford Ave. W., Hamilton, plans to build a $500,000 plant unit on Queen Elizabeth Highway.

WELLAND, ONT.—John Deere Co. Ltd. plans to make plant additions totaling $1 million.

WOODBRIDGE, ONT.—Robinson Cotton Mills Ltd. is planning to make factory additions costing $1 million.

QUEBEC CITY, QUEBEC—International Harvester Co. Ltd., 371 St. Paul St., is planning to construct a $500,000 plant on Bells Hill; plans by Ross, Patterson, Townsend & Houghan, Dominion Sq. Bldg., Montreal; C. E. Blackburn, c/o owner, Sherman Ave. W., Hamilton, engineer.

PRICES OF LEADING FERROALLOYS PRODUCTS

(Continued from Page 121)

packed 12.1c, ton lot 13.55c, less ton 15.2c. Delivered. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Contract, carload, lump, bulk, 13.0c per lb of contained Si, carload packed 14.3c, ton lot 15.45c, less ton 16.7c. Delivered. Spot, add 0.3c.

80-90% Ferrosilicon: Contract, carload, lump, bulk 14.65-15c per lb of contained Si, carload packed 15.9c, ton lot 16.9c, less ton 18.05c. Delivered. Spot, add 0.25c.

Low-Aluminum 85% Ferrosilicon: (Al 0.50% max.). Add 0.7c to 85% ferrosilicon prices.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 16.5c per lb of contained Si, carload packed 17.7c, ton lot 18.65c, less ton 19.7c. Delivered. Spot, add 0.25c.

Low-Aluminum 90-95% Ferrosilicon: (Al 0.50% max.) Add 0.7c to above 90-95% ferrosilicon prices.

Silicon Metal: (Min. 97% Si and 1% max. Fe.). C.l., lump, bulk, regular 19.0c per lb of Si c.l. packed 20.2c, ton lot 21.1c, less ton 22.1c. Add 1.5c for max. 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing min. 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y., lump per lb cl 6.90c; ton lots packed, 7.40c; 200 to 1999 lb, 8.15c, smaller lots 8.65c; or, lump, carload, bulk, 8.40c per lb of alloy, packed c.l. 9.20c, ton lots 9.30c, 200 to 1000 lb 9.65c, less 200 lb 10.15c per lb of alloy. Delivered. Spot up 0.5c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 13.75c per lb of briquet, carload packed 14.45c, ton lot 15.25c, less ton 16.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk, 10.00c per lb of briquet, c.l. packaged 10.8c, ton lot 11.6c, less ton 12.5c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 10.0c, per lb of briquet, c.l. packed 10.8c, ton lot 11.6c, less ton 12.5c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (**Large size**—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 5.75c per lb of briquet, c.l. packed 6.55c, ton lot 7.35c, less ton 8.25c. Delivered. Spot, add 0.25c.

(**Small size**—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 5.90c, c.l. packed 6.70c, ton lots 7.50c, less ton 8.40c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each) 80.00c per pound of Mo contained. f.o.b. Langeloth, Pa.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18%, and Si 53-59%). Contract, carload, lump, bulk 19.25c per lb of alloy, carload packed 20.05c, ton lot 21.55c less ton 22.55c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 17.9c per lb of alloy, carload packed 19.1c, ton lot 21.0c, less ton 22.5c. Delivered. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max., Si 4% max., C 0.10% max.). Contract, ton lots, 2" x D, $1.40 per lb of contained Ti; less ton $1.45. (Ti 38-43%, Al 8% max., Si 4% max., C 0.10% max.). Ton lot $1.28, less ton $1.35. F.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot add 5c.

Ferrotitanium, High-Carbon (Ti 15-18%, C 6-8%). Contract, $160 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destination east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21% C 3-4.5%). Contract, $175 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

VANADIUM ALLOYS

Ferrovanadium: Open Hearth Grade (Va 35-55%, Si 8-12% max., C 3-3.5% max.). Contract, any quantity, $2.90 per lb of contained Va. Delivered. Spot, add 10c. **Crucible-Special Grades** (Va 35-55%, Si 3.25-4% max., C 0.5-1% max.), $3. **Primos and High Speed Grades** (Va 35-55%, Si 1.50% max., C 0.20% max.), $3.10.

Vanadium Oxide: Contract, less carload lots, $1.20 per lb of contained V_2O_5, f.o.b. Bridgeville, Pa. Spot, add 5c.

Grainal: Vanadium Grainal No. 1, 93c; No. 6, 63c; No. 79, 45c; all f.o.b. Bridgeville, Pa., usual freight allowance.

TUNGSTEN ALLOYS

Ferrotungsten: (W 70-80%). Contract, 10,000 lb W or more, $2.25 per lb of contained W; 2000 lb W to 10,000 lb W, $2.35; less than 2000 lb W, $2.47. Spot, add 2c.

Tungsten Powder: (W 98.8% min.). Contract or spot, 1000 lb or more, $2.90 per lb of contained W; less than 1000 lb W, $3.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloys: (Zr 12-15%, Si 39-43%, Fe 40-45%, C 0.20% max.). Contract, c.l., lump, bulk 6.6c per lb of alloy, c.l. packed 7.35c, ton lot 8.1c, less ton 8.95c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract, carload, lump, packed 20.25c per lb of alloy, ton lot 21c, less ton 22.25c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Contract, 100 lb or more. 1" x D, $1.20 per lb of alloy. Less than 100 lb $1.30. Delivered. Spot, add 5c.

Borosil: (3 to 4% B, 40 to 45% Si), $6.25 per lb contained B, f.o.b. Philo, O., freight not exceeding St. Louis rate allowed.

Bortam: (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 0.90 to 1.15%). Net ton to carload, 8c per lb, f.o.b. Suspension Bridge N. Y., freight allowed same as high-carbon ferrotitanium.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Mn 5% max. Si 8% max., C 0.5% max.). Contract, ton lot, 2" x D, $2.75 per lb of contained Cb, less ton $2.80. Delivered. Spot, add 10c.

CMSZ Mixes: (No. 4—Cr 45-49%, Mn 4-6%, Si 18-21%, Zr 1.25-1.75%, C 3-4.5%; No. 5—Cr 50-56%, Mn 4-6%, Si 13.50-16.0%, Zr 0.75-1.25%, C 3.50-5%). Carload, 12 M x D, carload packed 19.0c per lb of material, ton lot 19.75c, less ton 21.0c. Delivered.

Silcaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, Boron 0.55-0.75%). Carload, packed, 1" x D, 43c per lb of alloy, ton lot 45c, less ton 47c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.). Contract, carload, packed, ½" x 12 M, 16.5c per lb of alloy, ton lots 17.25c, less ton 18.5c. Delivered. Spot, add 0.25c.

Graphidox No. 4: (Si 42-46%, Ca 5%, Ti 9%). C.l. packed, 16.50-17.00c per lb of alloy; ton lots 17.90-18.00c; less ton lots 19.40-19.50, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%; V-7, Cr 28-32%, Si 15-21%, Mn 14-16%), C.l. packed, 14.25c per lb of alloy; tons lots 15.75c; less ton lots 17.00c, f.o.b., Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx. 20% each Si, Mn, Al) Packed, lump, carload 11c, ton lots 11.25c, smaller lots 11.75c per lb alloy; freight not exceeding St. Louis rate allowed.

Ferrophosphorus (23-25% based on 24% P content with unitage of $3 for each 1% of P above or below the base): Gross tons per carload, f.o.b. sellers' works, Mt. Pleasant, or Siglo, Tenn.; $65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo, f.o.b. Langeloth and Washington, Pa., furnace, any quantity 95.00c. Effectiv Jan. 1, 1949, price will be $1.10 Langeloth.

Technical Molybdic-Oxide: Per lb, containe Mo, f.o.b. Langeloth, Pa., packed in bags containing 20 lb of molybdenum, 80.00c.